American Druggist

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ARCHITECTURE AND DECORATION OF DRUG-STORES.

(Continued.)

THE subject of the present article is one of the beautiful stores designed by Mr. Hugo Kafka, of 234 Broadway, and located, as the illustrations indicate, on the corner of an avenue in one of the finest neighbor hoods of this city. The store has already bene referred to in preceding numbers of this journal as an example of ingenious arrangement and beautiful decorative treat m e n t, and we mention it again at greater length, on account of the skill displayed in the use of space which was available, as well as for the beauty of its structural details.

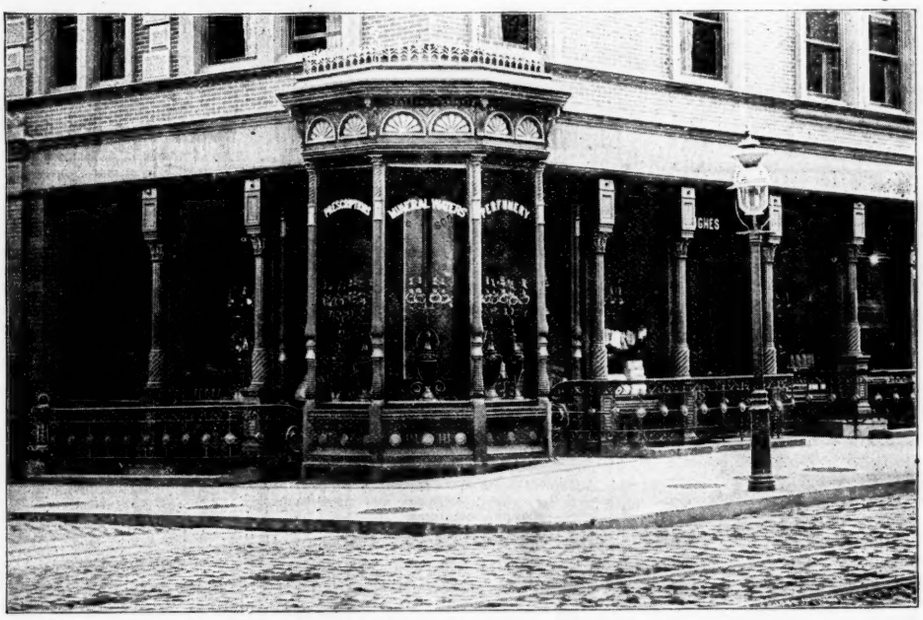
The store occupies the south-east corner of the block, having a frontage of 24 feet on the street, and 36 feet on the avenue, the entire frontage being of glass, excepting the space occupied by the iron columns which support the upper stories. Surrounding the large corner-column is on octagonal window, and the faces of the column are covered with glass mirrors. No show-cases are placed in the windows; but the window-ledges are so broad that they can be used, to some extent, for displaying a few articles of merchandise. The principal features of the window decoration are the elaborate gilt stands which inclose large colored-water vases, and support circles of smaller vases at their tops. One of these has been used by our artist as a basis for the initial letter at the commencement of this article and renders further description unnecessary. The plan of the store on the next page shows the arrangement of counters and shelving. The mineral water fountain, located near the corner window, is an elaborate structure of colored marbles and metal work, reaching nearly to the ceiling. Between the counter which surrounds the fountain and the easterly counter is a steam heat-radiator; and another smaller radiator, not indicated in the plan, is located between the entrance and the prescription counter, close to the window sill. The two views of the southerly and easterly walls show the design of the counters and shelves better than can be accomplished by verbal description, and it will be apparent that the work is of the most elaborate character. The floor of the store is made of colored tile, the counters are constructed of variegated and richly-colored marbles, and the woodwork of the prescription desk and wall-cases and shelving is oak. The ceiling is made of some material which admits of all the ornamentation being in low relief, and the effect is still further heightened by the use of colors in paint and bronze which harmonize well with the rich tints pervading other portions of the establishment.

The wall-cases are closed partly with sliding plate-glass doors, and partly with hinged doors provided with mirrors. This arrangement permits the proprietor to hide such goods as are likely to destroy the handsome appearance of the cases, and at the same time the apparent dimensions of the little store are very considerably increased.

A door to the eastward of the prescription desk admits one to a room which can be used for the night clerk, or as a store-room, as may be desired; and a door in this room opens to a stair-case going to the basement where large spaces beneath the building and the broad side-walk affords the accommodation for the reserve stock and laboratory.

The chief fault of the establishment is the limited size of the prescription desk, but this may in time be overcome in some degree, by having the prescription work done in the basement.

It may also be suggested that considerable space might have been obtained for displaying and storing fancy goods and sundries, if the front of the counter had been made with glass doors, instead of marble panels, opening into closets extending to one-third or one-half the depth of the counter.

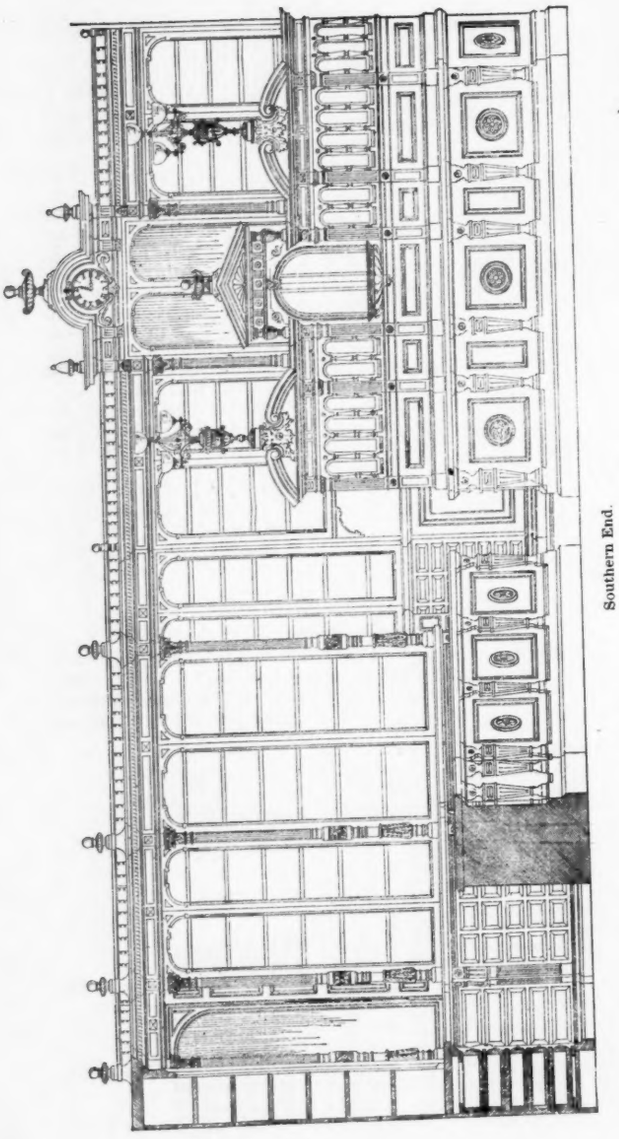


A Death supposed to be due to Antipyrin.

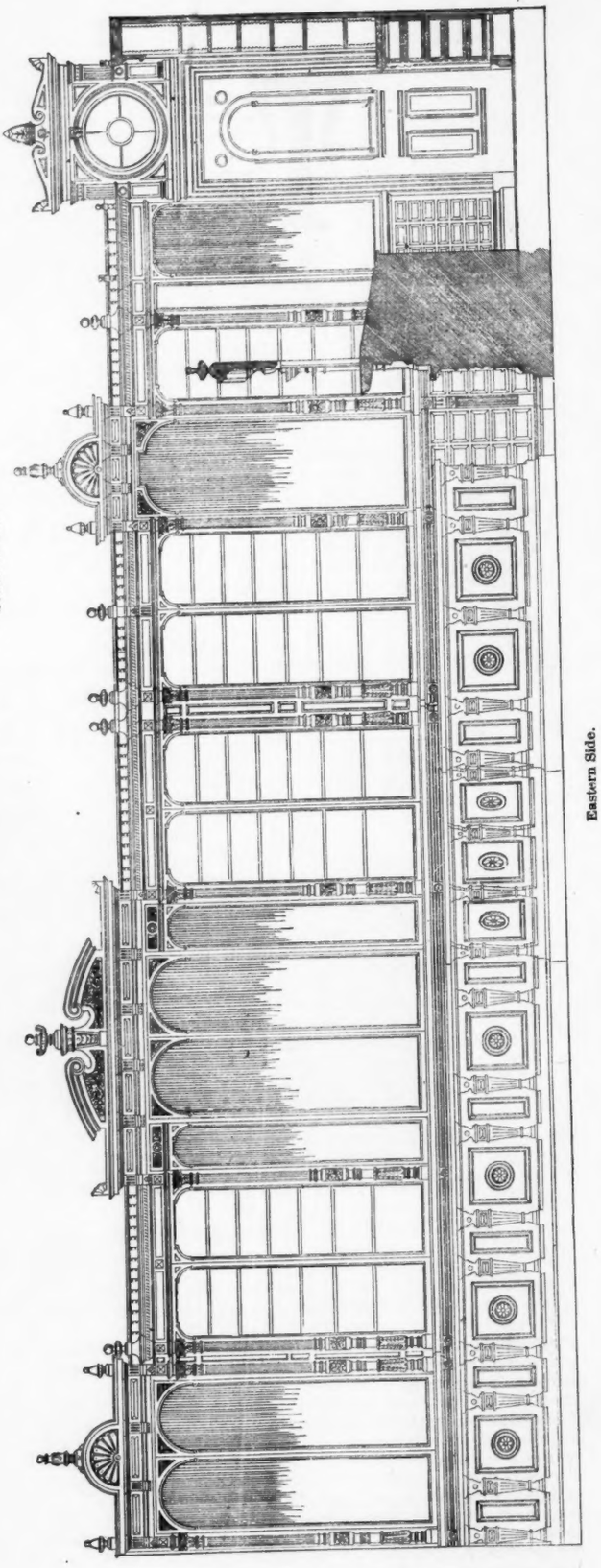
A RECENT number of the *Lancet* contained the account of a case in which antipyrin was supposed to be the cause of death. The patient was a woman, who had a miscarriage six weeks previously, and was admitted to the hospital, supposed to be suffering with enteric fever, which was later on diagnosed as of a puerperal character. At first quinine was given, but without effect. Finally antipyrin was used, 35 grains being given at 3 P.M., which caused the temperature to fall from near 103° to 98.4° F. at 6 P.M., when a dose of half that quantity was administered, the pulse having receded from 132 to 108. The low temperature persisted for about twenty-seven hours, presenting almost a complete collapse, then rose for a short time to 100.6°, when death occurred, all efforts at stimulation having failed.

This being the first recorded case of a supposed death by antipyrin, it will be well to study the action of the drug more carefully. We must, however, say that the above-mentioned case is an exceptional one, the condition of the patient being such that otherwise harmless doses of well-studied and commonly prescribed antipyretics might have produced similar depressing effects.

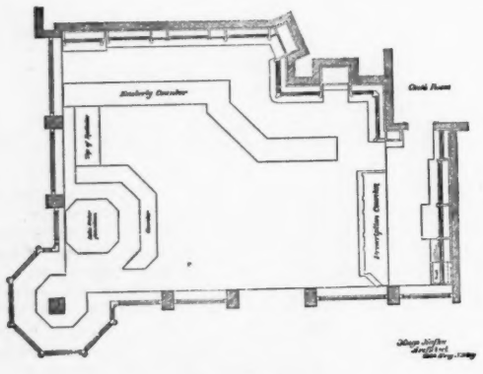
Over 200 ounces of antipyrin have so far been used in the public hospitals of the City of New York, without any accident or untoward symptoms, and with almost uniform good effect.



Southern End.



Eastern Side.



Plan of Store.

SHOULD PROPRIETARY MEDICINES BE REQUIRED TO GIVE AN ACCOUNT OF CONTENTS?*

BY ALBERT B. PRESCOTT, OF ANN ARBOR.

THE public supply of medicines concerns the public health. In directing the use of medicines, the physician is legally responsible for due professional skill. In selecting and dispensing medicines, the pharmacist is held accountable for competence and care. Medicines, when wrongly applied, are liable to act as poisons or hurtful things, and are liable to fail in the dependence placed upon them in the care of health. For all articles of medicine furnished to the public, it is desirable that some one should be responsible. In the sale of medicines to consumers, it is in the interest of human life that the seller should guard the consumer against mistake in the application of the medicine.

There is now a very extensive supply of medicines to the public under conditions as follows: They are issued in sealed packages which go unopened from the manufacturer to the consumer without inspection of a pharmacist or responsibility of any member of community; no record of their composition is given upon the packages or furnished in any way to the consumer or to his pharmacist. These conditions of secrecy in the supply of medicines become a proper subject of concern in state sanitation. From articles put forth in this manner as medicines of unknown composition, the individual is at liberty to select remedies in the treatment of his own infirmities. Now it is the right, and, within certain limits, it is the duty of the individual to judge for himself in the care of his own health, so long as he does not infringe upon the rights of others. He is to select his own physician, from any school of medicine or, if he prefers, he may treat his own household and choose his own remedies, without the help of a physician, in any intent that is not criminal. Certain restrictions may be imposed by the State, in its discretion, for the general benefit of health, with exercise of parental authority. In some countries the State proceeds to act for the public in matters such as the supply of medicines, as a parent acts for a child. So in France, before a medicinal mixture may be put upon the market, the Academy of Medicine must act upon its merits, having subjected it to chemical analysis and therapeutic trial, but in the United States, for the most part, the individual is assumed to be an adult capable of judging for himself. He has the liberty to select his own remedies, none of which are forbidden by the State, and, therefore, in this country more than any other, *the individual is to be protected* in the exercise of his greater liberty in the selection of remedies; protected against the mistakes of the careless and against the deceptions of the dishonest. If the State so far respects the right of private choice that no medicine requires a legal sanction for sale, so much the more must the State place safeguard against fraudulent imposition upon private choice, and provide favorable opportunities for its more careful exercise. In this protection of the individual it has long been required that a "poison-label," with the name of the article liable to act as a poison, shall be placed upon every package of powerful medicine that is dispensed without a physician's prescription; and in this protection of the individual it is fit and right that the so-called proprietary medicines of the present time shall be required by law to bear upon each package a statement of its contents—their names and proportional quantities.

This information is demanded as the right of the purchaser and consumer of the medicine, and the demand violates no right of the proprietor and manufacturer of the medicine. It is impossible to see how the maker of a medicine can show cause why its composition should be withheld. If the maker has any right as an inventor, he can only secure such right by obtaining a patent. A patent for composition of matter requires that an explicit statement of such composition be put on record in the Patent Office, and published in the Patent Reports, and grants no privilege of secrecy. Very few proprietary medicines are patented, but it is eminently fitting that Congress should require that medicines which do hold rights patent for composition of matter, should bear upon the label of each package on sale the same formula of composition for which the patent is granted. To this effect legislation by Congress should be obtained. But other medicines must be dealt with, as is held by the best authorities, through legislation in the several States.

It may be urged that property already invested in the publication of certain medicinal mixtures would be depreciated, with great loss to the proprietors, by a law that would give to each purchaser an account of contents of these mixtures. On this point it may be asked whether property invested in the secrecy of composition of a medicine is not invested at the owner's risk of such secrecy being prohibited by law. The law has made no guarantee of secrecy. If it be thought inexpedient however, to disturb business relations among the people by a prohibition of secrecy without forwarning, then the State may provide a law that shall take effect some time subsequently to its enactment, or provide a modified prohibition of secrecy of medicines in use prior to a near given date. At all events, the pecuniary interests of the proprietors of secret medicines now in use must not be permitted to overweigh the rights of the consumers of medicines for all time to come. The justice of prohibition of secrecy of medicines is clear enough and the policy of such prohibition is quite in accord with the spirit of our institutions.

If a statement of composition of medicines is to be required, it may be asked, in what terms is such statement to be given, and for what classes of medicine is it to be required? A statement of composition of any article must contain the names of its constituents, and names must be words defined in dictionaries of sufficient authority. The pharmacopœias of all nations and of all schools or professional organizations of medicine are the special dictionaries of names of articles used in medicine. The principal dispensatories are private authorities of good credit in definition of names of medicines. All these names are defined in published and well circulated books, and defined by statements of the composition of matter of the articles named, so far as such composition is generally known in the sciences giving definition to articles of medicine at present. The name of any secret or proprietary medicine, not defined in any of the dictionaries just mentioned, could not be used in the statement of composition to be required. But the name of any pharmacopœial preparation, though a single name for a mixture of many articles, can be used as a complete statement of composition of the preparation. Pharmacopœial English names or pharmacopœial Latin names may be employed, and there is no objection to the use of such common names as are defined in the dictionaries of the English language. But the use of trade names and newly-coined commercial slang names has to be avoided, these terms being often invented in the design to conceal composition. Furthermore, a statement of the composition of a medicinal mixture, to be sufficient for use, must include the proportional quantity of each constituent named. But the end might be well secured by a demand for the quantities of only the medicinally potent constituents, in case an arbitrarily fixed list of such medicinally potent articles be provided. No medicines for use in or upon the human body should be exempt from statement of composition to be made to the purchaser. Of course, a name of a mixture defined in a standard authority is a sufficient announcement of composition. The prescription of a physician, stating composition, need not be put upon the package, because it is already placed upon record by the pharmacist who serves the patient; and when a physician dispenses medicine he acts as the immediate agent of the patient in regard to the composition of the medicine. These, therefore, are no exceptions to the rule that the purchaser of every article of medicine is entitled to information of its constituents, a rule equally applicable to all medicines, and now seldom violated except in cases of "proprietary medicines," so-called. These are the articles which are proprietary in the sense that it is undertaken to hold property in a knowledge of their components, not in any special skill of their production. The just law of statement of composition to be made to the consumer makes no bar against the privilege of the manufacturer to reap reward for special skill or care, or even for invention of operative method. To furnish with a medicine a statement of what it contains is but bare justice to the consumer; to publish for a medicine an account of the apparatus of its preparation is to contribute in generosity something that may be a pecuniary benefit to a rival producer; to attach to a medicine the name of its producer is only to accept deserved responsibility and avoid the confusion of anonymous productions.

Granting, now, the justice of the proposed legislation, and the practicability of defining its boundaries, before we ask how such legislation can be secured, let us consider briefly what it promises to be worth to the interests of public health. How much would an open statement of the components of packeted medicines do toward a correction of the nostrum evil? Well, it would do something. And to do anything in absolute advance is worth the while and worth effort. It is not possible to do everything. Certainly a legal requirement of a printed record of contents will not bring about an entire reform in the indiscriminate medication of the public, under irrational claims of irresponsible authors. Should the desired law be obtained and fairly executed, doubtless when nostrums bearing formulæ of unknown drugs would be found to sell as widely as heretofore the secret nostrums, persons will say the end will not be worth the means. Nevertheless, it would be worth the doing to check the gross deception now covering simple and useful remedies in the nostrum business, and worth an effort to educate the public to scrutinize the claims of specifics.

Should the rational friends of public health unite in this matter, and make a faithful effort for non-secrecy in the "patent medicine" business, who will be found in opposition? Not the public at large. The people of the United States are slow to adopt certain safeguards against incompetence and deception in the treatment of disease and the supply of remedies, such as the safeguards of legal qualifications of physicians and pharmacists, these being measures that have seemed to limit personal liberty, and have been

* Read at the annual meeting of the Michigan State Medical Society, Port Huron, Mich., June 10th, 1885.

suspected of giving benefit to a class. The legislation for open composition of medicines is more fortunately placed in regard to public confidence; it stands as an evident protection to private liberty of choice, and class interests will appear arrayed against it. Not from the pharmacists of the United States, as a body, will opposition arise; on the contrary, the representative pharmacists will support the open composition of medicines, and the commercial interests of pharmacy are restive under the burden of secret packeted goods giving profit only to their proprietors. It is only the makers and owners of "proprietary medicines" of secret composition who will be found in active opposition. This opposition will not be slow or faint, and there are unlimited financial interests to support it. This is a class interest in very deed, liable to prove victorious in more than one contest over this issue. Victories of this sort, however, are apt to prove very unfavorable to the perpetuity of the monopolies who obtain them. The efforts of good physicians and faithful sanitarians can hardly do better service than to bring the question of secret composition of medicines to a fair and square issue between the people on the one side and the patent medicine makers on the other side.

NOTES ON PRACTICAL PHARMACY.*

(Continued from page 89.)

HYGROSCOPIC POWDERS.

THERE are several substances which are not suitable for powder mixtures by reason of their hygroscopic quality, *e. g.*, Sesquichloride of Iron, Acetate of Potassium, Carbonate of Potassium, Citrate of Potassium, Iodide of Sodium, etc. If that part of the powder mixture which serves as excipient is of a kind which is able to absorb a good deal of moisture without losing its pulverulent form, as, for instance, Pulvis Althææ, Tragacanth, Salep, Calcined Magnesia, Carbonate of Magnesium, Alumina, white bole, and if such excipients are present in ample amount, the mixture may keep dry for several days if inclosed in glass vessels or in paraffin paper.

	Gm.	gr.
℞ Potassii Acetatis,		
Rhei pulv.....āā	5.0	75
Magnesii Carbonatis....	15.0	240
Sacchari albi.....	10.0	150

M. f. pulvis. D. S. Take in teaspoonful doses.

In a wide-mouth glass vessel, the opening of which will admit a teaspoon, but which must be kept closed with a cork, the mixture may remain dry for one or two weeks.

If the absorbent excipient powder is present in small amount or is entirely absent, the physician should be informed of the hygroscopic quality of the powder mixture, or if this be impossible, the powder, unless it is divided, should be dispensed in an appropriate glass-vessel, with the notice that the powder will not lose its efficacy if it should become damp.

[Mr. Whitla, in the *Chem. and Drugg. Diary*, remarks: When the physician orders salts, like potassium iodide, or roots, like gentian, with directions for their solution or infusion by the patient himself, the dispenser should destroy their identity by the pestle before sending them out. Quinine, for the same reason, if ordered in a mixture without a solvent, should be carefully triturated until the crystals are broken up. In general, we agree with Mr. Whitla, though we do not think the rule could or should be always carried out.]

DETONATING OR EXPLOSIVE POWDER MIXTURES.

If substances which are rich in oxygen or are easily deoxidized are to form ingredients of a powder mixture, we must consider in what manner and order the mixture may and can be effected. Such substances must never be rubbed together with easily deoxidized materials.

Readily deoxidized drugs are: picric acid, potassium chlorate, potassium iodate, potassium bichromate (red chromate of potassium), potassium permanganate, also potassium nitrate, potassium picrate, silver nitrate, oxide of silver, chlorinated lime. Such substances should first be powdered separately by friction in the mortar. They are then mixed with the constituent which is not oxidizable, and lastly, without friction, and by stirring with a wooden rod or by gentle agitation in a glass vessel, with the powder which is oxidizable or has an affinity for oxygen.

Readily oxidizable substances are: carbon, organic powders, iodine, sulphur, sulphur combinations, reduced iron, powdered iron, iodide of iron, hypophosphites, also camphor, many ethereal oils, ammoniacal salts.

	Gm.	gr.
℞ Potassii chloratis.....2.0		30
Lactis Sulphuris..... ...3.0		45
Antimonii Sulphurati,		
Zinci Valerianatis.....āā	0.5	8
Sacchari.....5.0		75

M. f. pulv. Divide in partes 20 æquales.

Here the chlorate of potassium must be separately rubbed to a fine powder, also the following four ingredients must be mixed separately, then the chlorate of potassium is to be stirred in and mingled with this mixture by means of a feather. Pressure with the pestle would produce a dangerous detonation.

	Gm.
℞ Potassi Permanganatis,	
Calcii Carbonatis,	
Amyli..... ..āā	100.0

M. f. pulv. D. S. For dressing wounds. —*Dr. Demarquay.*

The permanganate of potassium is rubbed to powder separately, then mixed with the carbonate of calcium by trituration in the mortar. The starch, previously crushed, is placed in a salt-mouth vessel where it is united with the mixture of permanganate of potassium and carbonate of calcium by agitation.

	Gm.	gr.
℞ Potassii Chloratis.....10.0		150
Potassii Salicylatis..... 5.0		75
Cinchonæ pulv.... .....30.0		460
Carbonis ligni.....50.0		770

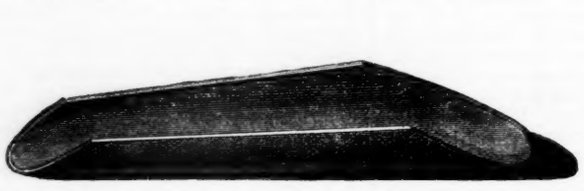
M. f. pulv. D. S. For sprinkling wounds.

This is a *very dangerous* mixture. The last three ingredients are to be properly mixed, spread on a sheet of paper, and the chlorate of potassium, after having been separately rubbed to powder, stirred and mixed by means of a feather.

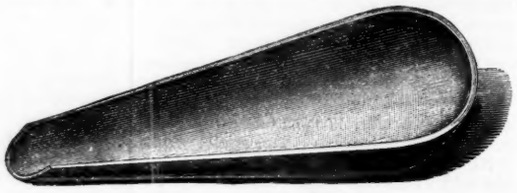
When delivering this mixture, humanity requires that attention be called to the fact that the mixture must be guarded against sparks or exposure to a naked flame, or pressure, as well as that the mixture should not be kept in a place liable to become hot, *e. g.*, near the stove or on the mantle. If dispensed in a box, even friction by the lid might cause an explosion. HENCE CAUTION SHOULD ALWAYS BE ENJOINED.

[It is not sufficient, in our opinion, that the pharmacist merely caution the patient in such a case. If he can communicate with the physician, to

*The basis of this series of papers is the latest edition of Hager's "Technik der Pharmaceutischen Receptur." The editors have, however, found it desirable to omit certain portions which relate to matters of practice peculiar to Germany and to insert others which are more characteristic of American customs. Editorial additions are inclosed in [].
The use of the original text has been kindly granted by Dr. Hager.



Form of the large powder receptacle.



Form of the small powder receptacle (of horn).

a, Small powder spoon; *b*, its form in longitudinal section.

A Waste of Pepsin.

A CORRESPONDENT of the *Répertoire de Pharmacie* makes a curious calculation as to the results that would follow from the strict carrying out of the injunctions in the Codex relative to the testing of pepsin. It is estimated that every pharmacien will receive a supply of each kind, amylaceous and extractive, at least twice a year. This would involve four examinations, each requiring on the average, according to correspondent, three experiments; and as there are are eight thousands pharmaciens in France, this would amount to 96,000 experiments. The Codex stipulates that the test shall be made with 10 grammes of washed and freshly-dried pig's fibrin, and the correspondent estimates that the yield of this material from the blood of a fair-sized pig does not exceed 190 grammes. To obtain, therefore, the quantity of fibrin estimated to be required annually for the testing of these two kinds of pepsin in France, 960 kilogrammes—it would be necessary to slaughter 9,600 pigs, and the writer speculates as to what would become of the porcine race, were the estimation extended to pepsin wine and other allied preparations. —*Pharm. Journ.*

Quinine Pills.

AT a recent meeting of the New York German Apothecaries' Society, a discussion arose on the subject of the most suitable excipient for quinine pills. It was contended by several members that an addition of tartaric acid was undesirable, as it rendered the mass difficult to roll. The following formula was then declared to be the best:

Sulphate of Quinine....	1 oz.
Tragacanth, powd.....	150 grs.
Glycerin.....	80 "
Syrup.....	160 "

—After *Deutsch-Amer. Apoth.-Zeit.*

draw his attention to the risk in having such a compound handled by inexperienced persons, he should under all circumstances do so, without, of course, criticising the prescription in the hearing of the customer or patient. If the latter is an intelligent person, he will readily understand that caution is necessary, and will scarcely fail to follow the directions. Sometimes, however, as, for instance when such a compound is to be delivered to a person going out of town, it may be advisable to dispense the mixture in two separate portions, properly labelled, one portion containing the danger-producing substance, and the other the remaining ingredients, both with directions how much of one should be mixed with the other, and how. And further, we think it incumbent upon every pharmacist to whom such prescriptions are brought to try and discourage the prescriber from ordering such compounds under any circumstances.

It would be well if there were a common understanding among physicians and pharmacists, that all powders intended for external use, or for the preparation of injections, lotions, embrocations, etc., should be dispensed in colored paper. A very good paper for this purpose is the highly-glazed, fine, hard-ware paper, which has a drab tint.]

DISPENSING AND DIVIDING POWDERS.

A powder is dispensed either in its entire quantity, the patient taking it by the point of a knife, teaspoon, etc.; or else it is dispensed divided into several doses. The division of a powder is indicated by the physician on the prescription in the following words: *M. Divide* (*Dividatur*) *in partes æquales* ..., for instance x. (*Div. in p. æq.*), or else a multiple dosing is demanded by: *M. D.* (*Dentur*, *Dispensa*, *Dispensentur*) *tales doses Nr.* ... (*D. t. dos. Nr.* ...). The dispenser must pay proper attention to the difference between these terminal formulas of a powder prescription. If it says: *Dentur or Dispensentur tales doses* x., take of the prescribed drugs as many times (here, *ten* times) the weight as there are to be doses, and after being mixed, the powder is divided into the number of equal parts called for (in this case *ten*). If it says: *Dividatur in partes æquales* x., the powder is mixed in the prescribed quantity and divided into the number of doses directed (in this case *ten*). The doses of the powders in the following two prescriptions are alike:

	Gm.	gr.
℞ Hydrargyri chloridi mitis	0.05	¾
Sacchari albi	0.5	8

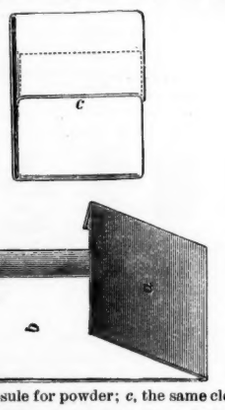
M. Dispensa tales doses quinque.

	Gm.	gr.
℞ Hydrargyri chloridi mitis.	0.25	4
Sacchari albi	2.5	40

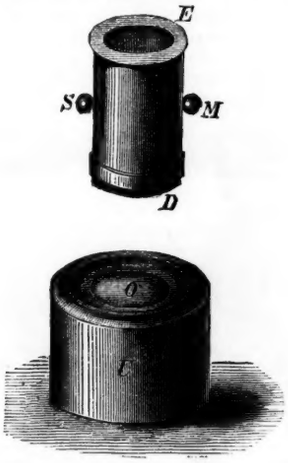
M. Divide in partes æquales quinque.

The doses are accurately weighed and emptied into so-called powder receptacles of horn bent in the form of the keel of a ship, and which are placed in a row on a piece of clean wrapping or smooth writing paper. If some powder remains after division, this surplus is added to the doses in quantities estimated by the eye; but if there is a shortage, that is to say, if the last dose lacks the full weight, an equal quantity must be taken from each of the other doses to bring the last very nearly to the full weight. This mode of division it not to be commended, especially in the hands of the inexperienced. It can be avoided in most cases if the loss in the quantity of powder during mixture and division be estimated at 0.03 Gm. (3 centigrammes) for each dose, and this loss be taken into account in dividing the whole amount of the powder.

To make the division by the eye, that is, without scales and weight, is never permissible in accurate dispensing. [It may, however, be justified in the case of powders which are entirely innocuous in their nature, and which are intended for external or other coarser use, particularly when many are to be put up in a short time. Even here it will generally be possible to adopt some safeguard against gross errors. For instance, a pill-box or other convenient receptacle may be selected, which, when evenly filled with the powder, without pressure, may just hold the required quantity. In the case of powders intended for internal use, or containing any important or active constituent, however, each one should be weighed by itself.]



a, *b*, Paper capsule for powder; *c*, the same closed.



Sevcik's wafer capsuling apparatus; *SM*, top piece; *U*, base.

A great convenience in the weighing of powders into smaller doses is a small powder spoon of proper shape. It is very shallow, at its anterior point slightly rounded, and as sharp as possible; its bowl must also form a large obtuse angle with the handle. These powder spoons are of horn or bone. [Many of the utensiles used in Germany or other continental countries, and mentioned in these articles, are not at all or but rarely used in this country or in England, except by pharmacists educated abroad. And even these do not confine themselves to the manners and customs inculcated upon them during their apprenticeship, but often adopt more modern, though equally correct methods.]

From the powder receptacle the dose is poured into the powder capsule and inclosed therein.

The capsules are made from a white, clean, smooth (calendered), or paraffined paper, which latter is still termed charta cerata. Only for the bicarbonate of sodium of effervescent powder, capsules of blue or pink paper are used. Capsules are kept in stock of different sizes, intended to contain 0.5, 1. and 2 Gm. of powder. [Most of this refers to continental usage only.]

The packages from capsules of the same size should always have the same dimensions. In order to effect this, the folding in of the powders is done as follows: The capsule is grasped with the left hand, by pressure with the thumb and index finger of the right hand one-third (*a*) of the capsule is followed over (comp. the figure), the powder is poured into the part *b*, and the latter bent in such a way that the slit *c*, which is to receive the part *a*, exactly halves the surface of the closed capsule.

Blowing into paper capsules so as to open them for the reception of the powder is a habit as insufferable as it is repulsive, which cannot be too strongly condemned. It could be called a necessary evil, were there no other method which would answer the same purpose. With a small knife or a sharp extract spatula held in the right hand, the fold of the capsule is easily opened. While the powder is being poured in, there is nothing to prevent the fourth and fifth fingers from holding the spatula pressed against the palm of the hand so as to have it ready for opening the next capsule. This implement may be used at the same time for gently tapping the horn receptacle in order to detach the generally adhering remnants of the powder. Moreover, the dispenser will find enough leisure moments in which he can open a number of paper capsules so as to have them ready for use.

Ob.

G

Ob, a wafer seen from above; it is dished like a soup plate. *G*, vertical section of a closed wafer filled with powder.

After the powders are capsuled or folded in, they are spread on the piece of paper on which the horn receptacles were placed, covered with another piece of thick paper, and smoothed with a paper knife. In some cases, this procedure will be necessary with each single capsule, but the force with which the paper knife is used should not be so great as to compress the contents of the capsule into a firm layer.

Divided powders containing volatile substances, such as carbonate of ammonium, camphor, ethereal oils, and such as are hygroscopic, *e. g.*, powders of sugars and dry narcotic extracts, are dispensed in capsules or boxes of paraffined paper.

Small powders of very bad taste are also at times dispensed in covered gelatin capsules, instead of papers. These gelatin capsules are packed in sliding boxes with an interposed layer of cotton or tissue paper.

POWDERS IN WAFERS.

Powders of bad taste and odor, or such as cause as deep stain, are inclosed in wafers and taken in this condition. There are various machines for the closing of wafers; Sevcik's apparatus is one of the simplest, handiest, and cheapest of these. It consists of only two parts: 1. The top (*SM*), or a double cylinder (of tin plate or silver), 3 Cm. ($1\frac{3}{16}$ inch.) long, 1.7 Cm. ($\frac{11}{16}$ inch) internal diameter, inclosing a movable wick (*D*) for moistening, and a closed end (*E*) opposite the wick, with which the firm closure of

the two wafers is completed; 2. A handsomely polished wooden base (*U*) having a depression (*O*) for holding the wafers. Top and base are strongly made and can be grasped firmly and handled rapidly.*

In order to fill the wafers, the powders are divided as above, placed on receptacles or pieces of cardboard, and then manipulated as follows:

1. The wafer (*Ob*) is placed upon the depression of the base; the wick of the top pieces is pushed out, moistened with water, freed from excess of moisture by being pressed several times against a clean towel, and the wick thus prepared suffices for at least twelve powders without any repetition of the procedure. The wick is now retracted and the tubular top *SM* set upon the wafer.

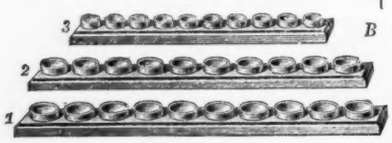
2. The apparatus, thus combined, is grasped at the top with the thumb and index finger, with the right hand the powder is poured upon the wafer through the tube of the top piece, the base is tapped lightly a few times, when the powder will spread evenly over the wafer.

3. The wick of the top piece is then protruded as far as the wafer, again retracted, and the top removed.

4. A second wafer is placed exactly upon the first, the top is set upon it with the solid end *E*, and pressed down by placing both thumbs upon the wick end of the top piece, thus closing the wafer.

NB. Special care must be had that the wick is merely damp and not wet, otherwise the margin of the wafer will be surcharged with moisture, and after drying will assume a horny, uninviting appearance.

With some practice, powders can be inclosed in wafers by means of this apparatus as rapidly as they can be put up in papers.



Limousin's wafer capsuling apparatus consists (1) of a press *A* with movable matrices *E* which permit of the employment of three sizes of wafers; (2) of three strips of wood with concave disks (*B*), whose size and form correspond to those of the various wafers; (3) of three dampeners (*C*) composed of metal rings with interposed cotton tissue for moistening the margin of the wafers; (4) of a porcelain box containing a disk of felt moistened with water.

The powders are inclosed in wafers in the following way: The wafers are laid on the wooden disks (*B*) of corresponding size, the powders are put on each of the wafers so as to cover only the centre of the wafer. If necessary the powder is slightly compressed. The margin of the wafer which is to serve as the cover for that holding the powder is moistened with the dampener (*C*), previously wetted by being pressed upon the felt disk in the porcelain box. The moistening is done by turning the dampener on its axis. Now the wafer, whose margin has been dampened, is laid upon that covered with powder, both resting on the corresponding matrix are put under the press and united by appropriate lever pressure.

Wafers are manufactured in wafer bakeries from the finest wheat floor mixed with more or less wheat starch. The mould consists of two iron or brass plates compressed by clamps. Medicinal wafers have the size of a silver quarter and are dished like a plate. The flat wafer sheets, thin white wafer plates, are frequently used by the public for the purpose of inclosing a dose of bad-tasting powders or electuaries. Seal wafers cannot be employed, as they are not rarely dyed with poisonous pigments.

Mr. Digne (Marseilles) has also constructed a rapid wafer capsuling apparatus, as well as a dose compressor, for the speedy dispensing of effervescing powders, the filling of wafers with powders, etc.

Powder compressors for changing powders into pastilles without any intermediate substance will be mentioned under the head of "Pastilles."

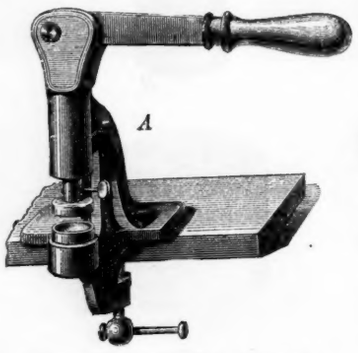
(To be continued.)

* The price is very moderate. The smaller apparatus costs 70 Austrian Kr. (about 36 cents); the larger, 80 Austrian Kr. (about 40 cents). The apparatus is for sale by Mr. Sevcik, pharmacist, Kleinseite, Prague.

COMPARATIVE QUALITY OF BELLADONNA LEAVES.*

V. COBLENTZ, SPRINGFIELD, O.

THE preparation and preservation of the narcotic leaves of the Solanaceous plants, not only in view to their elegance and also to retain them in a presentable shape while yet their alkaloidal value may remain unimpaired, has ever been a troublesome feature to our profession. Of late years this has been, in a great measure, overcome through the introduction of the practice of pressing leaves and at same time throwing the cultivation, drying, and preparation of these for the market entirely into the hands of specialists. Increased consumption has demanded a like supply, hence careless cultivation, collection, and drying has ensued in many places, and thus throwing upon the market a leaf of inferior qualities. The large portion



Limousin's wafer capsuling apparatus.

of our supplies is drawn from Germany, which represent a great variation in their comparative quality; this leaf is generally supplied in the dried loose condition, with a considerable lesser amount of stems and sticks than some of our own pressed leaves, which ofttimes consist mainly of these, with but a small proportion of the leaf. The English leaves we receive (some of which are packed in glass jars) present the appearance of an elegant and well selected leaf, upon which considerable care has been bestowed.

A number of our American pressed leaves are supplied to us without bearing the label of any one to guarantee their origin or quality, while the condition of the interior of some of these present such an appearance as would indicate to the ordinary observer that carelessness was the main feature in their selection and preparation; while, on the contrary, we find great care exhibited in the appearance of others, showing that quality was considered by them as of first importance. Let us for a moment glance at a few points to be regarded in their proper cultivation. The Atropa Belladonna is found growing wild in clearings of woods of Central and Southern Europe. In England it is cultivated largely in the chalky soil at Hitchin. In the wild state its range extends eastward to N. Asia Minor. The first year's growth (containing about one-half the quantity of atropine present in older plants) plant is small, unworthy of collection, and containing but little alkaloid; from the second to the fourth year the quality is fairly uniform. Then the leaves should be gathered when fully developed and before they have commenced to wither and fall, at the time of the commencement of flowering. The plants before flowering are not rich in active principle, but at period of flowering the full development is reached and maintained. A chalky soil favors the increased formation of atropine, which may, in a measure, account for the superiority of the English leaf. The first crop is usually collected during June, and second in September. The English, immediately after collection, place them in a close drying closet containing a large number of sliding trays, the heat being furnished by pipes, through which steam passes, and a draught of cold air entering at base and the heated air escaping out of the top. In this manner they are speedily dried without access of light. The wild belladonna contains a larger quantity of alkaloid than the cultivated kind, though the difference is so slight as not to be of any material difference in the manufacture of pharmaceutical preparations, yet the cultivated variety should be employed for the sake of uniformity. Gerrard finds the leaf to be the part of the plant richest in alkaloid, the root, fruit, and stem next in order. An examination of parts of wild and cultivated plants, by Gerrard, showed 100 parts each gave as follows:

	WILD.	CULTIVATED.
Root.....	.450	.350
Stem	.110	.070
Leaf	.580	.400
Fruit.	.320	.200

The leaves, without exception, have been found to yield the largest percentage of alkaloid, hence we might be led to conclude that pharmaceutical preparations of the leaf would be preferable to those from the root. This suggestion was not regarded by Redwood with any favor whatever, since the leaves are much more liable to undergo deterioration, hence a source of variability. As regards this possible variability, Gille has stated thus, "Well dried at first, the leaves gradually reabsorbed humidity every time the bottle was opened as long as the hygrometric state of the external air exceeded that of the bottle. Under the influence of this moisture a reaction soon commenced, a mixed odor of mould and ammonia occupied the interior of the bottle, and then moist reddened litmus paper suspended in the air of the bottle is quickly changed to blue, and a rod moistened with HCl, held to the mouth of the bottle, gives off abundant white vapors of AmCl. This production of ammonia depending on nitrogenous principles in the leaves, of which atropine is one, this alkaloid should disappear in part or altogether, as it is known to change easily into ammonia and another odorous base, very soluble in water. For the rest, when belladonna leaves putrefy like other organic matter—and the instance above is a commencement of putrefaction—it is probable that the alterations which then occur do not respect the salts of atropia, and even if they did the changes which have supervened must injure the medicinal quality of the drug." Be that as it may, the comparative cleanliness and freedom from an overabundance of coloring matter peculiar

* Read at the meeting of the Ohio State Pharm. Association.

to the leaf, and with the general satisfaction it has given among the medical profession, has permitted the root to supersede the leaf in most of the concentrated pharmaceutical preparations of the drug. Again appearance of the leaves cannot always be a criterion to be guided by. Some apothecaries take particular pride in the large size and elegant appearance of their narcotic leaves and pay a much higher price for them than for a small and shriveled leaf collected from wild plants in bloom, thus frequently sacrificing efficacy for sake of elegance. Considering the variability of the appearance and quality of our supply of the leaves, an examination of their alkaloidal value was then considered necessary in order to determine to an exact certainty their true value. The quantitative estimation of the alkaloids (atropine, etc.), in Bell. leaves is attended with considerable difficulties on account of the presence of a large amount of extractive matters, including chlorophyll, which interfere much and hinder the various operations with their presence, rendering the alkaloids difficult of extraction in pure enough form for weighing, this being one of the most important points in our estimation of this kind. I first attempted exhaustion with 86° alcohol, followed by addition of water to alcoholic extract, drove off the alcohol by gentle heat, filtered, washed with ether and precipitated the alkaloid by potassio-mercuric iodide. This did not answer, since the alcoholic solution was so loaded with chlorophyll and extractive matter as to impede filtration and thorough washing. After several trials, the process finally adopted was as follows:

One hundred grammes of dry and coarsely powdered leaves are exhausted by hot water, acidulated with 1.0 Gms. of tartaric acid to each 100 Gm. of leaves, the decoction is allowed to settle and the supernatant liquid is poured off on to a filter and upon the residue in the flask another portion of distilled water is poured and boiled, and the entire contents are gradually poured out upon the filter, and when drained, washed. The mixed decoctions are carefully evaporated to a soft extract, which is then treated with abs. alcohol, heated to about 50° C. to dissolve out the tartrate of atropia. The extract is thus treated three or four times until entirely exhausted, about 5 grammes of alcohol being required to every gramme of the extract. The tincture is diluted with a little water, and the alcohol driven off, leaving an extract of syrupy consistence containing the alkaloid as tartrate, which is then washed in a separator with one or two portions of ether to remove a little resin, and chlorophyll. Then by rendering the aqueous solution alkaline with ammonia, and agitating with several portions of chloroform, the atropine, etc., are obtained after evaporation of the mixed solution in an almost impure state. The residue was entirely soluble in dilute acids, and when its solution in chloroform was allowed to evaporate spontaneously, the alkaloid was left as a mass of minute white crystals. To ascertain the amount of pure alkaloid contained in the residue, I resorted to the recommendations of Messrs. Dunstan and Rawson's method of estimation, that of precipitation from its solution in water slightly acidulated with dilute hydrochloric acid by the alkaloidal reagent: solution of iodine in potassium iodide in excess, this completely precipitating every trace of atropine and hyoscyamine from the solutions as dark-green periodides. The ppt. is filtered off, slightly washed with a solution of iodide, and decomposed on the filter with a solution of sodium thiosulphate, when it dissolves entirely, forming a colorless solution, from which the alkaloid is removed by several thorough agitations with chloroform, which are separated and mixed, and agitated with a small quantity of water (rendered faintly alkaline with ammonia), to remove adherent aqueous liquid. The chloroform is then evaporated over a water-bath until the weight of the atropine and hyoscyamine is constant. In this process we avoid the extraction of an excessive amount of color and non-alkaloidal constituents; the tartaric acid as employed would not prodnce any decomposition of the alkaloid; the heating of the alkaloid with alkalies is also avoided. Leaves from some cultivated plants were obtained that had been gathered just before flowering, near the first of June, and also a sample of some that had been gathered during the latter part of August, when the berries began to ripen. A—100 Gm. of dry leaves collected in May yielded .0413 Gm. residue; B—100 Gm. of dry leaves collected in May yielded .0409 Gm. residue; a—100 Gm. of dry leaves collected in August yielded 0.0453 Gm. of alkaloidal residue; b—100 Gm. of dry leaves collected in August yielded 0.0359 Gm. alkaloidal residue. The amount of pure alkaloid obtained from them severally are in their order—0.0401, 0.0395, 0.0450, 0.0451.

The samples of leaves examined were such as are usually supplied to the trade, including those in pressed packages with the loose German and Allen's English. The samples of this last leaf average a larger per cent than any of the others. Several of the American pressed were musty, and consisted of a large per cent of stems, and yielded a very low amount of alkaloid, while some others of American pressed yielded a per cent of alkaloid that compared favorably in amount to the best. The German leaves varied considerably in their alkaloidal yield, probably depending on careless handling and storing as well as collection at wrong season. The results are summed up in the following table, giving the quantity of alkaloid (atropine and hyoscyamine) in 100 parts or grammes of the dry leaf as the alkaloidal residue, the pure alkaloid is also given as found in estimation as periodides.

No.	Alkal'd'l Residue	Pure Al'k'd.
1.....	.0179	.0171
2.....	.0095	.0090
3.....	.0205	.0182
4.....	.0439	.0433
5.....	.0405	.0398
6.....	.0050	.0020
7.....	.0117	.0109
8.....	.0092	.0090
	GERMAN LEAVES.	
1	.0221	.0212
2.....	.0432	.0420
3.....	.0185	.0180
4.....	.0127	.0109
	ENGLISH LEAVES.	
1	.0426	.0422
2.....	.0417	.0411

Thus on comparison we can see the variability of the quality of our supply of the leaves; there are several samples among these obtained in package form that yield a rather large proportion of alkaloid and leave nothing desirable in their quality, while again we observe a number of others that are quite fair, while 3 are quite worthless. It may be said concerning these latter ones that their packs did not bear the name of any firm as to indicate their origin. The German leaves were found to be quite variable, while the English leaves that were at hand were excellent.

Old but Good.—The remark of the man who, on visiting Asbury Park last month, said that in the middle of the day it was so quiet you could hear a gum-drop.

OINTMENT OF NITRATE OF MERCURY.*

BY H. CCOOK, P.H.G.

THE present officinal process for the preparation of this valuable ointment is a satisfactory one, and it is not our intention to offer a new formula for it; but simply to relate some of our experience in the preparation of this agent, knowing that we are treading well-trodden ground.

The leading points to be considered are, namely: First, the method of employing heat in preparing this ointment, and secondly, the practicability of using petrolatum, the popular ointment base, with nitrate of mercury.

It is well-known that the successful preparation of citrine ointment depends entirely upon the degree of heat employed; the proper strength of the acid, and a suitable oleaginous base containing a large per cent of olein.

With the above-mentioned facts in mind, a number of experiments were made, following the officinal directions as to the quantities of ingredients, but differing in the manipulations as to the employment of heat.

Seventy-six (76) parts of lard oil were placed in a capsule, and seven parts of nitric acid having a specific gravity of 1.42 were added without stirring, and the two heated to about 50° Centigrade for about fifteen minutes, then gradually elevating the temperature to 70° Centigrade, and maintaining this temperature until the slight effervescence ceased, and the mixture had acquired a rich orange color, indicating that the nitrous compounds had acted upon the olein in the oil, and the reaction had resulted in the production of elaidin, which is one of the valuable constituents of the ointment. When this mixture had become almost cold, the solution of nitrate of mercury was added, and then stirred with a wooden spatula till a homogeneous ointment, having a bright butter color was formed.

Lard oil contains much olein, which is, theoretically, a glyceride; that is a compound ether, or salt of the triatomic alcohol, glycerin, $C_3H_5OH)_3$, and the mono-basic oleic acid. Now this large per cent of olein (the liquid principle of the oil) when treated with the nitrous fumes is converted into a yellow butyraceous mass which must be rich in elaidin, by virture of the large per cent of olein acted upon. The further reaction between the HNO_3 and the fatty matter is a complicated one, and possibly the oxidation of the oil at the expense of nitric acid by the liberation of nitrogen dioxide and nitrogen tetroxide is too violent and hurried when the oil is first heated to 70° Centigrade, as officinally directed, and the resultant compounds less permanent than those formed at a lower temperature. An ointment made as above stated, was found to retain its bright color longer than one made by heating the oil first to 70° Centigrade after the officinal directions.

Secondly, the adaptability of petrolatum to nitrate of mercury.

Petrolatum, a new officinal, is becoming quite popular with pharmacists as an ointment base and justly so, for it is admirably suited for the purpose where the ointment is simply a mixture, but where chemical action is concerned, as in the case of nitrate of mercury solution, its practicability is very doubtful.

Now petrolatum, as is well known, is the purified residue left after the more volatile portions of crude petroleum have been distilled off, and then it is purified by heating and percolating through animal charcoal. Petro-

* Read at the meeting of the Ohio State Pharm. Association.

latum is composed of a mixture of soft hydrocarbons and impure paraffins, and undoubtedly some of the olefines. The latter might alter in composition and give rise to rancidity, but the paraffins are not capable of direct oxidation, and therefore render ointments made with petrolatum permanent when exposed to the ordinary atmospheric influences.

It has been shown that when hot nitric acid is brought into contact with a mixture of hydrocarbons, and members of the paraffin series, as it is with petrolatum, that octane, a higher member of the paraffin series is attacked, and other compounds are formed whose therapeutic value is, as yet, very doubtful.

With a view of determining the comparative value of petrolatum and lard oil in citrine ointment, a number of experiments were made in which petrolatum was used as the oleaginous base. The officinal directions were strictly followed, resulting in an ointment which, when freshly made, was a light-brown color, and being of a spongy and granular consistence. Several samples were prepared with petrolatum, all of which became very dark brown in color after standing several weeks.

Judging from the change of color, gradually deepening to a dark brown, and also from the peculiar consistence of the ointment made with petrolatum, it is probable that there are changes going on between the acid nitrate of mercury and the paraffins that cannot be productive of good from a therapeutic view, and certainly not from a pharmaceutic one.

Samples of nitrate of mercury ointment made with petrolatum were given a trial by one of our medical brothers, for the purpose of ascertaining the therapeutic value, and, after a fair trial, it was found to be, in his opinion, decidedly inferior in value to the officinal preparation.

Hence it is our opinion that petrolatum is altogether unsuited for use in the manufacture of citrine ointment, and the practice indulged in by some pharmacists, of using petrolatum in this ointment, is one that should be abandoned, as it is believed to be unscientific and impracticable.

COLUMBUS, O., May 16th, 1885.

Quinine Alkaloids.

AN extraordinary piece of information is furnished by the text of an English patent* issued to P. Giacoso. While we have no faith in its allegations, we nevertheless quote them (after the *Chem. and Drugg.*)

The inventor has "discovered" that the alkaloids of Peruvian bark occur in plants of the genus *Artemisia*, from which they can be extracted either in the ordinary manner or according to the following method: The fresh or dried flowers and seeds, together with the whole plants (the best in *Artemisia Abrotanum* Linné), must be chopped fine and digested in diluted acid (sulphuric, hydrochloric acid, etc.). The extracts obtained by the diluted acid are neutralized and precipitated by a base. From the filtered moist basic mixture the alkaloids are obtained by heat with chist-oil, coal-oil, or petroleum having a low boiling-point, or by means of alcohol. In the latter case, the alcohol must be distilled off, the residue must be treated with dilute acid, and the alkaloid precipitated by means of carbonate of soda or another base. From the solution in the hydrocarbons the alkaloids can be transformed into salts by means of acids, and evaporated afterwards by means of carbonate of soda or another base.—*Journal of the Society of Chemical Industry.*

* P. Giacoso. Eng. Pat., 1472, January 15th, 1884.

EXAMINATIONS OF COMMERCIAL DRUGS.*

BY S. W. M'KEOWN, OF YOUNGSTOWN, OHIO.

BLACK SULPHIDE OF ANTIMONY.

MORE than ten years ago I remember reading in a medical journal that the black antimony of the stores was, in most instances, nothing but a mixture of chalk, sand, and soot. I at once examined a sample, and found that it effervesced briskly with acids after the manner of chalk, and that it contained also a black substance resembling soot or charcoal, most of which floated on the surface of the liquid. During the past year, however, I have examined a number of samples more carefully. The article which is sold to the trade at the remarkably low price of from four to six cents per pound is simply a mixture of marble dust and anthracite coal, in a proportion of from 18 to 33 per cent of coal to 82 to 67 per cent of marble dust. One sample that I analyzed a few months ago had the following composition:

Carbonate of Lime	44.14
Carbonate of Magnesia	35.07
Oxide of Iron and Alumina	0.34
Insoluble Silicates	3.68
Carbonaceous Matter	15.92
Sulphide of Antimony	0.85

The presence of the sulphide of antimony may have been the result either of accident or design. Another sample contained marble dust two parts and coal (anthracite) one part, and not even a trace of antimony. An analysis of the marble dust used in preparing carbonic acid gas for the soda fountain proved it to have a similar composition to the marble used in the two samples mentioned, being magnesian marble or dolomite. These two specimens resembled so closely the genuine black antimony, that only a practical eye could detect the fraud. Their density, however, was little more than half that of the real article. In the absence of chemicals, the most convenient test for this drug is to agitate a small quantity in a glass vessel with water and decant, thus washing away most of the coal, leaving the marble nearly white and not at all resembling the genuine similarly treated.

When we consider the mountains of coal dust in the anthracite regions, and the vast deposits of limestone and marble, it does not seem probable that there will ever be a scarcity of black antimony. Three samples of genuine black antimony were examined. One was found to contain 27.28 per cent impurity, mostly silicious, another 23.84 per cent silicious matter, and a third marked antimony ore, 71.94 per cent quartz, etc.

Equal measures of the five specimens above described were weighed, and found to compare with water in density as follows:

Water	100
Genuine antimony	181
Genuine antimony	178
Antimony Ore	134
1st Marble Dust Mixt	110
2d Marble Dust Mixt	88

PRECIPITATED SULPHUR.

Two samples were found to have the following composition:

	1st.	2d.
Precipitated Sulphur	41.70	43.88
Precipitated Sulphate Calcium	58.30	56.12

The sulphur was dissolved out of a weighed quantity of the drug with carbon bisulphide, and the residue washed with ether and dried in a hot-water oven and weighed. The insoluble residue was identified as calcium sulphate by chemical tests, and as precipitated sulphate by means of the microscope. Four other samples were ignited on a crucible lid. In each case a residue was left equal in bulk to the original substance. Of seven samples examined, only one was found to be pure.

* Abstracts from papers read at the meeting of the Ohio Pharm. Assoc.

CAPSICUM.

In about a dozen samples of adulterated capsicum, I found corn meal to be the adulterant in all except one. Pure capsicum contains no starch, and a portion boiled with a little water and treated with two or three drops of tincture of iodine, should produce no blue coloration. The ash should be white and amount to about 4.50 per cent. Exhausted with 94 per cent alcohol, it should yield about 28 per cent solid ext. A mixture of equal parts of capsicum and corn meal will, on the contrary, yield only about 14 or 15 per cent alcohol extract under the same treatment. By this method I have found the greater part of the adulterated capsicum to be about half corn meal. A few samples had only 25 per cent adulteration. The ash in most of the adulterated specimens is red or brown, and amounts sometimes to 7 or 8 per cent. The color is probably due to some red ochre put in to color the mixture. Turmeric is also used as a coloring agent, and can be detected by treating the suspected drug, first with alcohol, and then with ammonia. This treatment will not change the color of pure capsicum, but it produces a blood-red color with turmeric. The microscope furnishes the best means of determining the character of the adulterant.

POWDERED CAPSICUM.

	Adulterant.	Alc. Ext.	Ash.
Cayenne pods,	pure,	24.95	4.50
New York,	pure,	38.73	4.39
New York,	pure,	27.85	4.55
New York,	pure,	29.33	4.95
Philadelphia,	corn meal,	20.52	7.73
Philadelphia,	corn meal,	15.13	3.84
Cleveland,	corn meal,	14.97	
Youngstown,	doubtful,	13.62	7.72
Youngstown,	corn meal,	12.87	5.37
Youngstown,	corn meal,	12.32	4.37

[Samples 2, 4, 5, and 6 were obtained from wholesale dealers.]

BAKING POWDERS.

The best baking powders that I have found in the market are composed of cream of tartar and sodium bicarbonate with more or less flour or starch. The cheaper baking powders are made of common alum and sodium bicarbonate, with from 40 to 60 per cent of flour or starch, and sometimes bone phosphate is one of the ingredients. The Price Baking Powder, which I consider one of the best in the market, contains cream of tartar, sodium bicarbonate, and potato starch. The Cleveland Baking Powder contains flour instead of starch. The Royal Baking Powder contains some carbonate of ammonia in addition to the three ingredients already mentioned. If the cream of tartar and sodium bicarbonate were strictly pure, the correct proportions to mix them would be: Cream of tartar, 47 parts, and sodium bicarbonate, 21 parts. Inasmuch, however, as the cream of tartar used may contain from 3 to 6 per cent of calcium tartrate (and in some instances 15 per cent), it is found necessary in practice to use a larger proportion of cream of tartar than in the above formula. In a majority of cases, using reasonably pure materials, 49 parts of cream of tartar to 21 parts of sodium bicarbonate are found to work satisfactorily. Manufacturers, I believe, determine the proper proportions of each new lot of materials by assay.

Starch or flour is a necessary ingredient if the baking powder is to be kept any length of time before used. A manufacturer not long ago informed me that he once sent out a large quantity of baking powder, made of cream of tartar and soda only, and that nearly all of it was afterwards

returned to him as worthless, each individual package being as hard as a brick. So far as my observation goes, all the cheap baking powder contains alum. I believe it is conceded by the best authorities that alum is an objectionable ingredient in food, if not positively harmful. Still, it will probably continue to be used by cheap baking-powder makers until some ingenious person discovers a cheaper substitute. The alum used is always the ammonia alum. It is to the cheap baking powder what cream of tartar is to the higher grades of powder. Alum decomposes sodium bicarbonate, and the resulting carbonate in its turn displaces the ammonia of the alum. A mixture of the two drugs in proper proportions, subjected to heat and moisture, react upon each other, and both the carbonic acid and ammonia are driven off, and sulphate of aluminium and sodium are left in the place of the sodium bicarbonate and alum. Five cents' worth of alum and baking soda will furnish more available gas than the same money's worth of any other drugs. I would recommend the following as a good formula for a baking powder:

Cream of Tartar.	7 parts.
Sodium Bicarbonate.....	3 "
Starch	2 "

The material should be carefully dried and thoroughly mixed by sifting. I frequently see recommended a mixture of tartaric acid and sodium bicarbonate for a baking powder, but I have never found it prepared, and do not know anything of its merits.

Helianthin as an Indicator.

ACCORDING to H. le Chatelier, helianthin promises to become a valuable indicator in many analytical operations.

[Helianthin is the ammonium salt of dimethylaniline - azobenzol sulphonic acid, known in commerce as "gold orange," "tropæolin D," "orange III."]

The author points out that this reagent is not affected at all by hydrosulphuric acid, monosodium phosphate (NaH_2PO_4) and other substances capable of precipitating certain metals, which may be in combination with strong acids; and that the latter may then be determined volumetrically, which will in most cases also suffice for estimating the amount of base. For instance, zinc acetate may be decomposed by hydrosulphuric acid, and the liberated acetic acid determined by titration with standard alkali in presence of helianthin as indicator. The amount of acetic acid will at the same time furnish the quantity of zinc by a simple calculation. Aluminum salts may be similarly determined by precipitation with monosodium-phosphate.—*Comptes Rend.*, 100, 737.

Cod-Liver Oil as a Nutrient, Externally Applied.

ASSUMING that a granulating surface, if sufficiently large, might be made use of with benefit as a medium for the administration of nutritive material, and that certain such materials could be applied to it which would not interfere with the processes of cicatrization, Dr. Hopkins (*Ther. Gaz.*, May, p. 303), in the treatment of an extensive ulcer, determined to employ for this purpose an emulsion of cod-liver oil, to which was added five grains each of pepsin and pancreatin to the ounce. The ulcer was accordingly dressed once a day with lint soaked in the preparation. A very decided change was soon observed; the appetite began rapidly to improve, and in fourteen days the area of the ulcer was reduced from one hundred and five to seventy-seven square inches.—*Pharm. Jour.*

EXAMINATION OF CYPRIPEDIUM.*

BY VOLNEY C. DAGGETT, PH.G.

AFTER a preliminary account of the botany, history, and other known facts relating to the officinal rhizome of Cypripedium pubescens, the author gives a detailed description of his method of analysis and of the results he obtained, from which we take the following:

Henry Blair made an examination of cypripedium in 1866 (*Amer. Journ. Pharm.*, 1866, p. 494) and reported it to contain volatile oil, tannic and gallic acids, two resins, gum, glucose, starch, and ligneous matter.

Mr. Daggett first distilled a portion of the drug with water, returning the distillate upon fresh portions of the drug until three distillates had been obtained. The last distillate was milky and aromatic, with minute globules of oil floating on the surface. The quantity of the latter was, however, too small to be removed and examined.

In reducing 200 grammes of the drug to a number-80 powder, 175 Gm. of such powder were obtained, and the loss, therefore, amounted to 12½ per cent. On drying a portion of the powder at 212° F., it lost 11.3 per cent of moisture.

The drug was now subjected to the action of various solvents, and a known weight of the drug operated upon.

1. Exhaustion with petroleum ether. This was continued until a drop of the percolate, when evaporated on glass, ceased to leave a residue. The petroleum ether used was very volatile, had a specific gravity of 0.6565 at 58° F., and boiled at 110° F.

2. Exhaustion with ether. The residue from last operation was dried and then extracted with ether. Subsequently the residue was treated with

3. Alcohol (strong) in the same manner. Finally it was macerated in

4. Cold water, and filtered.

The remainder left after this treatment was kneaded with cold water, allowed to stand until the coarse particles settled, and the supernatant liquid was then allowed to settle completely.

I. The petroleum ether extract was of a pale straw-color and neutral. Evaporated at a low temperature, it left a dark, reddish-brown, syrupy residue (*a*), having a peculiar, somewhat aromatic odor. Weight of residue 1.66 Gm.

On washing this (*a*) with water, it separated into two layers, one light, the other dark-colored. The whole was then poured on a wetted filter, when it yielded a transparent, neutral filtrate (*g*) of a slight odor and a slight disagreeable taste.

The residue (*b*) upon the filter was of a pasty consistence and brownish color. On washing it with strong alcohol, it nearly all dissolved, yielding a reddish-brown, opaque filtrate, with a few oily-looking globules at the bottom, which had probably been carried through the filter mechanically.

The remaining residue (*c*) was then washed with 80 per cent alcohol, but this removed nothing of any account. The same happened when 50 per cent alcohol was used.

The final residue (*d*) was then again dissolved in petroleum ether, which on evaporation left an oily, aromatic liquid, causing a permanent stain on paper, and losing its aroma by heat.

It apparently consisted of a *fixed oil*, with traces of *volatile oil*.

The alcoholic washings were concentrated and mixed with water, which caused a milkiness. After standing over night, a brownish-looking substance was found floating on the surface. The whole was then distilled from a paraffin bath, the temperature rising to 275° F., and the heat continued until the residue was reduced to a small bulk. It consisted of two portions, the lower being white and milky (*e*), the upper being composed of numerous dark-brown globules of a greasy odor. The mixture was washed with ether, and this, on evaporation, left behind a dark-red, transparent *oil* (*f*), not aromatic and distinctly acid. When saponified, it yielded a salmon-colored lead soap, perfectly soluble in ether, partly so in benzin, and insoluble in carbon bisulphide and chloroform, showing the oil to have been a glyceryl oleate.

The milky understratum (*e*) from which the oil was removed contained nothing of interest.

The fixed oil (*f*) separated was perfectly soluble in alcohol to a clear solution; also in benzin and chloroform. With petroleum ether and carbon bisulphide it formed a milky, apparently only partial solution.

The aqueous washings (*g*) of the petroleum ether extract were treated with various alkaloidal reagents, but in no case was a precipitate obtained even after standing. Nor was any such precipitate obtained in the original solution. On being evaporated, the water washings yielded no residue.

II. The ether extract was dark wine-colored, transparent, and acid. On evaporation, it left a firm resinous extract amounting to 3.05 Gm.

This extract was first washed with water (*h*), which gave a pale-yellow liquid of persistent disagreeable taste, and slight aromatic odor, which yielded a reddish-brown precipitate with phosphomolybdic acid and a reddish precipitate with picric acid, but none with other alkaloidal reagents. On distilling a portion of the aqueous washings, and evaporating the distillate, a minute white residue was left, destitute of crystalline structure. It was too small to be studied further.

The aqueous washings (*h*), when treated with ferric chloride, gave a bright-green color, disappearing on heating. Gelatin and tartar emetic yielded no precipitate. The remainder of the washings was agitated with acetic ether and the solution (which was strongly acid) evaporated. It left a sticky, transparent, reddish residue, showing a slight crystalline formation after standing some weeks. It turned ferric chloride bright green. Repeated extraction of the residue of the washings with sulph. ether yielded the same result. Chloride of calcium, gelatin and tartar emetic failed to produce a precipitate. Hence tannin is absent and *gallic acid* is present.

The residue of the ether extract, thus washed with water, was then treated with 95% alcohol, then with 80% and with 50% alcohol (*h*). The residue left on the filter was then dissolved in ether, and this left a slight brown resinous residue on evaporation.

The alcoholic washings (*h*) were dark-red, acid, and had a peculiar, disagreeable taste. Treated with animal charcoal, filtered, and evaporated spontaneously, they yielded a residue of brown amorphous *resin* and numerous white crystalline plates (*i*). The resinous portion was then redissolved in alcohol. It yielded a dark-red resin, of bitter, disagreeable taste, freely soluble in alcohol, ether, and chloroform, less soluble in petroleum ether or benzin.

The cystals (*i*) mentioned above turned out to be sodium chloride.

III. The alcoholic extract of the drug was deep red, acid, and of indifferent odor. It contained 31.225 Gm. of residue.

The alcohol was got rid of by adding the residue to hot water and washing with water (*k*). The residue was finally again dissolved in alcohol (*l*).

These aqueous washings (*k*) were amber-colored, acid, and had a strong taste. After acidifying with sulphuric acid and treating with reagents (enumerated by the author, but omitted

(Continued from page 131.)

* Abstract of a thesis presented to the Massachusetts College of Pharmacy, 1885.

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EDITORIAL.

SOME of the New York daily papers are urging their readers to abstain from making purchases on Saturday afternoons, in order that storekeepers may close their establishments and give their employees a half-holiday. The long hours exacted of drug-clerks have been mentioned several times in the course of this movement, but whether they will eventually derive any benefit from it is to be doubted. The fact is that many of the classes of employees who are securing a half-holiday are those whose day's work always ends at 6 P.M., while the drug-clerk has often to remain on duty four or five hours longer.

Numerous attempts have been made to bring about an early-closing movement in the retail drug-trade, but so long as the nature of the business remains as it is, the hours of labor will continue as now. So many of the articles sold in drug-stores are likely to be required in emergencies and are so rarely kept, in any supply, in the house, that so long as the druggist's customers are up and about, so long will they resort to his establishment to supply their wants. Indeed, their demands do not cease by any means when they have gone to bed, for a nocturnal attack of illness is often an occasion for an unseasonable call on the tired apothecary. Then, too, competition is becoming too great to permit one to risk losing customers who might be drawn off to rival establishments if they were to find the store, at which they have been dealing, closed earlier than usual. The same stress of competition obliges proprietors to carry on their business with the smallest expense for clerk-hire, and there is, therefore, little chance for recreation where there is no one to do the work when the only clerk is away. Indeed, there are not a few establishments where the proprietor has no assistant besides the errand-boy, or where a single clerk has the entire care of a branch store.

The wages of drug-clerks have been reduced to meet the decrease in profits, until men who can influence a little ready money, or induce a jobbing-house to give them credit, often feel that they can do better as proprietors and open a new store. If they should make little or nothing from the business for a time, it will be but a trifle less than they earn as clerks.

After the new store has been opened and it is discovered that the paying prescription business is apt to be taken to the older establishment, the new-fledged proprietor is then apt to realize that his *professional* character is something that may grow in time; but that the patrons in his neighborhood, whose confidence and business he has in view, depend on him, as yet, for their "patents," bird-seed, cigars, licorice, etc., but take their prescriptions to some one else. Just here comes the temptation to become a "cutter" and *draw* business by low prices. In other words, it is a question of *paying expenses*, and it is of no more use to preach Campion-plan or any other co-operative scheme to such a man than it is to stem the rising tide with a broom. His money or some other person's money is in the business; the expenses *must* be met and the note *must* be paid. Talk short hours of labor for such a man and you waste your breath. He works early and late, and his clerk, if he has one, must be on hand late and early. If profits are small, the sales must be multiplied. That man writes no papers on professional topics and attends no pharmaceutical meetings. The only professional journal he takes is the one sent him as a sample copy, and he does not often take time to read even that. He not only takes no pains to educate his clerk, but he is rather inclined to discourage study during business hours—there are too many things else which need his attention, and then, too, a drug-clerk may grow in time into a business rival, and do as his employer did—start an independent store, and "trust to luck" for business.

Unfortunately, the number of pharmacists who are such slaves to their business, though small in any community, are sufficiently numerous to interfere with the success of any plan for co-operation, whether it be in the matter of prices or shortening the hours of work.

In the latter respect, more is to be expected from public sentiment than from trade co-operation, and we hope that such pharmacists as can write, will send communications to the journals read by the public, and keep the latter in mind of the needed reform. It will be useless to publish such letters in pharmaceutical papers, for the non-professional reader rarely or never sees them; and any amelioration, as we have before intimated, must come from the sympathies of the *customer* and not from the *vendor*.

IT is with much pleasure that we are able to announce the enactment of pharmacy laws in Massachusetts and Michigan. The most strenuous efforts were made to prevent the act becoming a law in the former State, and there was some fear that it would share the fate of its predecessor of 1884, but the justness of the demand, and the support of the retail pharmacists and public, at length carried the day. The groundless statement made by opponents last year, that the law was intended for the benefit of the College of Pharmacy, was avoided even more scrupulously this year by suppressing any effort which might by any possibility be construed in such manner.

The Numerous Uses for Salt.

WE extract the following seasonable remarks from an editorial in the *New York Medical Journal:*

"The unquestioned benefit derived from salt-water baths in many chronic affections is undoubtedly due in part to the circumstances attending their use. The summer trip to the seaside in August, which appears to be almost a fashionable necessity, in very many cases yields a grateful interest on the investment, in the way of renewed health and vigor, except when indulgence in the varied dissipations of the prominent seaside resorts counterbalances the good that would otherwise accrue. The fresh air, the out-door life, the very exercise of bathing, contribute, in a measure, to the end attained; but the salt itself exercises an influence that is not to be overlooked, as it stimulates the skin, quickens the circulation, and often appears to promote the activity of the organic functions. When we consider that the water of the sea contains only about two per cent of chloride of sodium, with a varying but extremely minute proportion of other ingredients, we see how easy a matter it is to imitate it at home when the summer vacation is over, and thus to prolong the benefit and comfort that have been derived from salt-water bathing. A cupful of salt to the basinful of water is all that is requisite for a sponge-bath; while those who possess the luxury of a metropolitan bath-tub will find that a peck of salt to the tubful of water will yield a more prolonged enjoyment and corresponding benefit. No one, we suppose, but a believer in infinitesimals would pretend that the minute quantities of the other chlorides, or of the sulphates and carbonates found in sea-water, exerted any appreciable effect on the economy, and the influence, such as it is, may be fairly attributed to the chloride of sodium alone.

"The antiseptic properties of salt suggest a number of useful applications. In surgery and midwifery carbolic acid and corrosive sublimate have rendered great services, but at the same time their employment is not wholly without danger, although comparatively weak solutions are made use of. Salt, even in very strong solution, would be harmless, and might possibly replace the more active antiseptics in many cases. As a cleansing application to foul ulcers and wounds salt solutions have been used from the earliest times. In cases of indolent action, with large, pale, and flabby granulations, the astringent effect of the salt would doubtless prove of service, as well as in many cases of excessive mucous secretion.

"There is yet another application of salt, and one that certainly merits more extensive investigation. We refer to the disinfection of night-soil and other sewage. In cities, a few handfuls of salt thrown daily into the water-closets, and an occasional handful thrown into the wash-basins, would go far, we believe, toward counteracting the noxious effects of the omnipresent sewer-gas, against which sanitary efforts have so long been directed. In the country, a quart or more of salt used daily in the privy vaults would serve an equally useful purpose."

(Continued from page 129.)

here), the presence of *tannin* was established.

To remove this, acetate of lead was carefully added to the remainder of the washings, until it ceased to produce a precipitate. The filtrate was brownish, bitter, and acid. On treatment with potash, an abundant white precipitate was produced, which was filtered off and washed with alcohol. The alcoholic washings left a residue of a light straw color, and slightly bitter.

The filtrate from the potash precipitate still retained its bitterness. On evaporation it lost its color, had a very bitter taste, and the consistence of glucose. Previous to concentration, a portion of the liquid was distilled, and a trace of a *volatile acid* obtained, which was not further investigated. The thick residue obtained yielded nothing to ether, petroleum ether, or chloroform. It was partly soluble in alcohol. On being dissolved in water, and treated with picric acid and potash at a boiling temperature, the solution turned blood red. A pink color was produced by warming with basic acetate of lead and potash—both of which reactions show that glucose was present in the liquid *after* the heating or warming. Fehling's solution, however, failed to be reduced, until after boiling the liquid with dilute sulphuric acid, when it became rapidly reduced. Heated on platinum foil, it darkened, charred, emitted the odor of burnt sugar, and finally was consumed without residue.

The author, therefore, concludes that a glucoside is present, but leaves this point to be decided by a further examination to be made by him.

A precipitate was produced by adding potash to a portion of the aqueous washings; this was shown to be magnesium, and no other bases were present.

The alcoholic solution (*l*) of the residue, left by the alcoholic extract above mentioned, was treated with animal charcoal, and afterwards with 30%, 50%, and 70% alcohol, respectively.

These solvents yielded *resins*, deepening in color with the concentration of the alcohol, of bitter taste, and while differing from each other in some respects, yet probably closely allied. They were not urther examined.

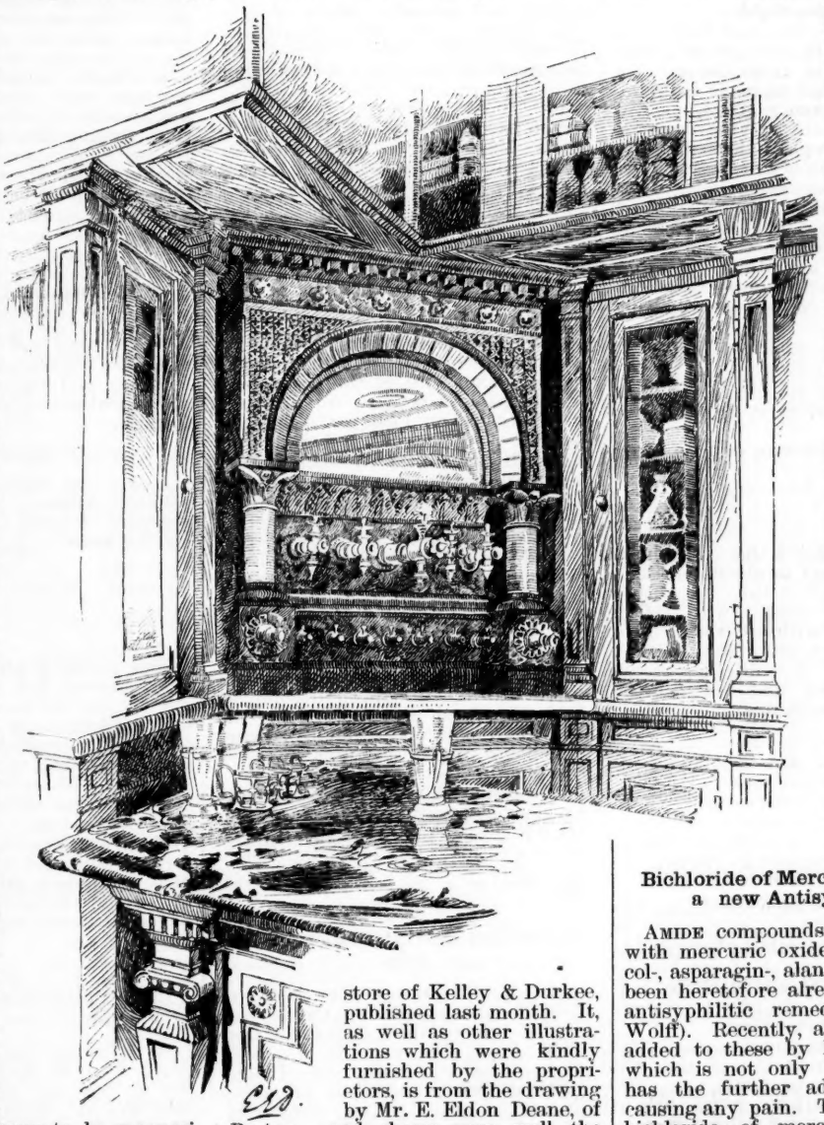
IV. The watery extract of the drug was found to contain gum, sugar, and starch. The ash contained in the drug amounted to 11%.

The constituents established by the author to be present in the rhizome of *Cypripedium pubescens* are, therefore, the following:

Traces of Volatile Oil,
Fixed Oil,
Two Resins,
Volatile Acid,
Tannin,
Gallic Acid,
Gum,
Sugar,
Starch,
Sodium Chloride,
Magnesium Salts,
Ligneous Matter,
A Bitter Principle (probably a glucoside).

AN ELABORATE MINERAL WATER APPARATUS.

We publish herewith the illustration of the Mineral Water Apparatus referred to in our description of the



store of Kelley & Durkee, published last month. It, as well as other illustrations which were kindly furnished by the proprietors, is from the drawing by Mr. E. Eldon Deane, of Boston, and shows very well the peculiar features of the apparatus, as described. The black-and-white marble used throughout the store for counters is also well indicated, and likewise the relations of the apparatus to the gallery and wall-cases.

Detection of Oil of Turpentine in Oil of Lemon.

While it is an easy matter to tell good fresh oil of lemon from such as has become therebinthinate in taste, and no one is likely to examine the oil chemically merely for the purpose of ascertaining whether it has a fine flavor and is suitable for delicate uses, yet a reliable test for the presence of oil of turpentine, which is indeed often added to inferior sorts, is quite desirable.

Such a test has lately been proposed by G. Heppe (*Chem. Tech. Central Anz.*, III., 371), the reagent being butyrate of copper.

A portion of the oil is gradually heated on a sand-bath in a perfectly dry test-tube, with a small quantity (about as large as the head of a pin) of butyrate of copper, to a temperature of about 172° C. (341.6° F.), taking care that it do not exceed 180° C. (356° F.). If the oil of lemons was pure, the copper salt dissolves and colors the oil green. If oil of turpentine, however, was present, the oil becomes turbid at the above temperature, turns yellow, and deposits reddish-yellow cuprous oxide. The difference between the pure and the impure oil is so decided, not only after heating, but also after again cooling, that even a person unfamiliar with chemical manipulations can easily recognize it. The adulterated or impure oil is yellow, the pure oil clear and green. If, however, too much of the copper salt had been taken, the oil will be green after cooling, even if oil of turpentine was present. Nevertheless, the yellow precipitate will distinguish it from the pure oil.

The butyrate of copper must be dry and in powder. To raise the temperature over 180° C. is not advisable, since the pure oil itself would suffer change in this case. And, although pure oil may even then be still recognized by the test, yet the latter is much less distinctive.

This test is very likely applicable also to oils of bergamot and orange.

Bichloride of Mercury and Urea: a new Antisyphilitic.

Amide compounds of fatty acids with mercuric oxides, such as glycocol-, asparagin-, alanin-mercury, have been heretofore already proposed as antisyphilitic remedies (by Dr. A. Wolff). Recently, another has been added to these by Dr. Jos. Schütz, which is not only inexpensive, but has the further advantage of not causing any pain. This compound is bichloride of mercury and urea. Schütz at first used a solution containing 1 Gm. of corrosive sublimate and 0.22 Gm. of urea in 100 Gm. of water, corresponding to the molecular proportions:

$$\underset{270.92}{HgCl_2} + \underset{60}{CH_4N_2O} = 1 : 0.22$$

But since urea is usually a little damp, or contains traces of impurities, and a solution containing an excess of bichloride causes pain, a slight excess of urea is of advantage, particularly as it does no harm. Hence 0.5 Gm. of urea were employed instead of 0.22.

It is not necessary to prepare this solution every day fresh, as it will keep for at least a week and perhaps longer.—After *Pharm. Zeitung*, No. 33.

Vaseline and its Melting Point.

A CORRESPONDENT of the *Pharm. Zeit.*, in an article entitled "Russian Vaseline" (*Pharm. Handelsblatt*, No. 6, has occasion to point out that Kretschmer's method of determining melting points is liable to errors. Kretschmer introduces the substance into a narrow, almost capillary glass-tube closed below, introduces a droplet of mercury, and closes the other end of the tube likewise. On introducing the tube into water gradually being heated, the droplet of mercury is supposed to fall through the liquefied fat at the temperature of melting. It is, however, found that this takes place very irregularly, owing to the small calibre of the tube, as well as the still adhering fatty particles.

A more simple plan is the following, proposed by the writer of the article in the *Pharm. Handelsblatt*:

A small beaker was half filled with mercury. Upon this was placed a piece of the vaseline of about the size of a pea, and the thermometer bulb immersed in the mercury. The whole was introduced into into a drying oven covered with a glass plate, through a hole in which the stem of the thermometer projected. Heat was applied very carefully and slowly. The temperature was noted at the moment when the piece of fat melted on the surface of the mercury. The author had 3 Russian vaselines and 1 sample of Chesebrough's, which showed the following melting points:

a.	Russian 1	43–44° C. (109.4–111.2° F.)
b.	" 2	36–37° C. (96.8–98.6° F.)
c.	" 3	36–37° C. (96.8–98.6° F.)
d.	Chesebrough's	27–28° C. (80.6–82.4° F.)

The specific gravities of these were as follows:

a.	0.8520	*c.*	0.8545
b.	0.8560	*d.*	0.8570

It had been stated that vaseline is soluble in alcohol to about one-third its weight. To test this, the author shook 3 Gm. of vaseline with 30 C.c. of 95% alcohol, with application of a gentle heat, then allowed to cool to 6–7° C. (ab. 43° F.), filtered, evaporated the alcohol, and weighed the residue. This amounted

	in sample	to only	or
a.	0.4138 Gm.	.....	13.79%
b.	0.1093 "	....	3 94%
c.	0.1048 "	....	3.49%
d.	0.1763 "	.....	5.88%

Estimation of Oil in Cattle Cake.

HAVING had occasion to estimate the percentage of oil in some sample of linseed and cotton cake, a very simple and effective method of conducting the analysis suggested itself to me, and a description of it may be of some use to analytical chemists.

It consists in placing the sample—together with about 50 C.c. of ether in a small well-stoppered bottle, tying the stopper down, and leaving the bottle in a vessel of boiling water for fifteen to thirty minutes. The solution of oil is decanted into a small weighed flask, the residue in the bottle washed with ether, and the washings added to the contents of the flask; the ether may then be distilled off, and the residual oil dried at 100° C.

A repetition of the process was found to give in no case more than 2 Mgm. of oil, thus appearing to be far more exhaustive than the method usually employed, which consists in either boiling the sample with ether in a flask fitted with an inverted condenser, or repeatedly drawing cold ether over the cake which is packed in a glass tube, while at the same time it is more expeditious and less troublesome.—SPENCER PICKERING, in *Chem. and Drug.*

The Toxic Effect of Insect Powder.

REGARDING the mode of action of this powder upon insects, the fact should be kept in mind that the lungs or breathing apparatus of the insect are very different to those of the vertebrate animal. Instead of lungs, as we have, set apart in one portion of the frame, for the definite object of supplying oxygen to the blood after the latter has become in need of it, the insect has a central tube, connected with the air by a row of orifices on each side of its body, from which smaller channels radiate to every part of its circulation. The animal lung demands two systems, as it were, of circulation, the arterial and the venous. The insect has but a single circulation, and the whole of its blood is being constantly and fully brought into contact with fresh supplies of air. Hence the instant and powerful effect of any toxic substance with which the air may be impregnated. Thus an insect may be almost instantly killed by the vapor of chloroform or ether or prussic acid. These facts are powerful arguments for the theory that it is the volatile constituents of insect powder which are fatal, and not the actual contact, necessarily, of its particles.—*Chem. and Drugg.*

Preserving Saccharine Liquids for Testing.

IT is sometimes desirable to preserve saccharine liquids which are to be subjected to systematic investigations for a considerable time, and to do so is very difficult without the occurrence of fungous growths. W. Ostwald had occasion to look for a method capable of overcoming this difficulty. The ordinary antiseptics, such as corrosive sublimate, phenol, etc., were inapplicable, as they either produce a special inverting effect themselves (Ostwald's samples had to be so preserved that the sugar should undergo absolutely no change whatever) or entered into some reaction with certain acids to be added. Indifferent substances, such as carbon disulphide and chloroform, suffered gradual decomposition in the sugar solution, rendered it turbid, and produced decomposition products showing inversion. The only two substances finally found which prevented any change were camphor and petroleum.

The author obtained the best results by placing some lumps of camphor in the liquid to be preserved, and soaking the stopper used for closing the flask in petroleum.—*Journ. prakt. Chem.*, 1885, 308.

Glyceritum Acidi Carbolici for Earache.

MR. H. BENDELACK HEWETSON, of Leeds, read a paper before the meeting of the International Otological Congress, Basle, last year, in which he first commented on the general anæsthetic as well as antiseptic properties of carbolic acid. He had frequently, he said, after operating, lost to a great extent his sense of touch for a time, from constant immersion in the solution of carbolic acid which is used for instruments. In nearly all operations (the removal of a breast, for instance), the glyceritum acidi carbolici is applied to the wound to stop the after-smarting, and this it does effectually. Then arose the application of the glyceritum acidi carbolici to the exposed nerve in toothache. The relief is absolutely instantaneous if the tooth-pulp is exposed, the patient passing from the severest pain to that of a state of bliss, which all testify to who have experienced relief from toothache. When earache is due to toothache, which it is in a large number of cases, this application of the glycerin and carbolic acid cures the earache by relieving the toothache. Mr. Hewetson went on to say that times without number he had in cases of acute earache injected a solution of carbolic acid and glycerin, and that it invariably stops the pain. In cases of earache from periostitis, either in cases of chronic otorrhœa or in uncomplicated cases of inflammation of the external auditory meatus, the relief to the pain is not so rapid; but if the carbolic acid and glycerin be allowed to remain in the meatus, then relief from pain is obtained in from ten to thirty minutes. The proper way to apply the injection is, to draw the lobe of the ear forcibly upward and backward, as in syringing the ear, to straighten the entrance to the meatus, and then allow the fluid to trickle gently down one side, whilst the air escapes up the opposite side. In cases where the meatus is very swollen at its orifice, he has injected the solution up a fine elastic catheter well covered with vaseline to promote its easy passage, and in this way he has relieved earache when it could not have been alleviated, except by a hypodermic injection of morphia or such means. Mr. Hewetson prefers the British Pharmacopœia strength to weaker solutions. He believes the application would be very useful in the earache of scarlet fever.—*Chem. and Drugg.*

The Chemical Constitution of Cocaine.

G. CALMELS and E. GOSSIN have re-examined the chemical constitution of cocaine, and their analysis of the chloro-platinate of cocaine leads to the formula

$$(C_{17}H_{21}NO_4.HCl)_2.PtCl_4.*$$

Lossen has shown that cocaine is split up, by concentrated acids, into ecgonine, benzoic acid, and methylic alcohol, thus:

$$\underset{\text{cocaine}}{C_{17}H_{21}NO_4} + \underset{\text{water}}{H_2O} = \underset{\text{ecgonine}}{C_9H_{15}NO_3} + \underset{\text{benzoic acid.}}{C_7H_6O_2} + \underset{\text{methyl alcohol.}}{CH_4O.}$$

This splitting up is now found by the authors to take place not only under the conditions mentioned by Lossen (heating in a closed tube with hydrochloric acid), but also by Kraut's method (heating in a closed tube with baryta). The products were under all circumstances identical with those given by Lossen.

From a series of investigations made with ecgonine, the authors conclude that there is a close relationship between the alkaloids tropine, cocaine, ecgonine, and isotropine. — *Compt. Rend.*

Elixir of the Phosphates of Iron, Quinine, and Strychnine.

AT a recent meeting of the New York German Apothecaries' Society, Dr. A. Tscheppe made the statement that Wyeth's Elixir of Phosphate of Iron, Quinine, and Strychnine never turns dark, but always remains bright-green; and further, that it contained no phosphoric acid. A very similar preparation may be produced by the following:

Sulphate of Quinine.....	f. 3 2
" " Strychnine..	gr. 2½
Tincture of Citro-chloride of Iron (Tasteless T. of I.)..	f. 2
Simple Elixir, enough to	f. 16

The alkaloidal salts are to be dissolved in the tincture, and the elixir then added. If the quinine is reduced by ¼, the product becomes more stable.—After *Deutsch-Am. Apoth.-Zeit.*

* Dragendorff, Analyse v. Planzen, etc., p. 264, gives the formula $C_{17}H_{19}NO_8$, which is probably based on an error.

DROPPING FLASK.

F. V. POOL recommends an improved form of dropping flask for use in volumetric analysis. [We should have said in stathmetic analysis, in which the amount of test liquid is weighed instead of measured, so as to eliminate the error due to differences of temperature.] The dropping flasks in use at the present day are few in kind and very simple, being nothing but small flasks of varying capacity, provided with a top or side-tube, and open to the objection which is found in using the burettes of Gay-Lussac and Bink. The flask here shown is an improvement upon existing forms, and has been used for some time in the laboratory and with a great deal of satisfaction. It consists of a light, flat-bottomed flask of a size determined by the capacity of the balance upon which it is to be weighed. From one side, near the bottom, a narrow tube starts and reaches up a little higher than the body of the flask, being then turned outward, like the side-tube of a Gay-Lussac burette, which it resembles. In the neck of the flask a small hole is blown, which, during the operation of dropping, is governed by the thumb of the manipulator. Into the neck of the flask a rubber stopper is fitted, and through this stopper a short thistle-tube is passed. The upper part of the latter is covered by a piece of thin sheet rubber securely fastened by a piece of thread. The flask filled with the standard solution is first counterpoised on the balance. It is then grasped around the neck, the thumb being placed very near the small hole in the side, and the forefinger held just over the rubber membrane on the top. The flask is then tipped, so as to deliver the solution through the side-tube, the rapidity of flow being governed by the thumb which closes the small hole in the neck at will. If at any time during the operation a drop is formed at the end of the tube, it can easily be forced out or drawn back into the flask by the control of the thumb and forefinger. By this means any amount of delivery may be obtained from part of a drop (by touching the end of the tube to the stirring rod) to a steady stream. After a sufficient quantity of the solution has been used, its weight is determined by replacing the flask upon the balance-pan and adding weights to balance the counterpoise in the other pan. In our own laboratory, we use for this purpose a balance whose capacity is 500 grammes in each pan, and a counterpose consisting of a small pasteboard box partly filled with shot. With this it is the work of only a few seconds to counterbalance the flask, and after the titration is completed, the amount of solution used is quickly ascertained by the above method of leaving the counterpoise as it was, and adding weights to the pan containing the flask. The capacity of the latter is about 250 C.c., and one filling suffices for several operations, the counterpoise being changed each time by removing some of the shot. The convenience of this modified volumetric method can be appreciated by those who usually have a number of determinations of one kind to make in a day, and it will recommend itself to all on account of the ease of manipulation, accuracy, and slight cost of the apparatus. The adaptation of the above-described contrivance to a Gay-Lussac burette is obvious. All that is necessary is to adapt a rubber stopper and thistle-tube to the burette, and to blow or drill a small hole into the side of the burette about an inch from the top.—*Chemical News.*

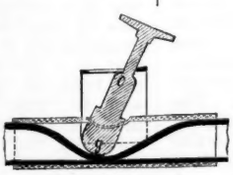
A NEW PINCH-COCK.

W. ELGES, of Berlin, has obtained a patent on the pinch-cock here illustrated.

The rubber-tube to be compressed passes through a piece of metallic tubing, having a projecting nipple with an opening through which passes the stem of a pestle-shaped compressor, which is further guided by passing through a corresponding hole in the tube itself, at *p*. By pressing upon the upper end of the pestle, the rubber tube is compressed, and the flow of liquid arrested. An attachment is also described in the patent (not shown in the cut) by which the pressure is regulated with a set-screw.

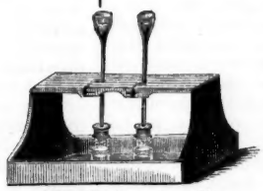
APPARATUS FOR FILTERING MERCURY.

MERCURY which has become dirty and impure by use in safety-funnels, gas-troughs, or other chemical apparatus, may be readily freed from all suspended matters by filtration through fine leather. Prof. Pfaundler, of Innsbruck, has constructed an apparatus for this purpose, which is here illustrated. It consists of a cast-iron pipe, to one end of which a funnel is attached. The other end has a small projecting shoulder, over which a piece of leather is stretched, which is securely tied. One or more of these tubes may be placed in a rack, so that the leather-covered end dips into empty bottles. The impure mercury is poured into the funnels, and, by its own weight, is forced through the pores of the leather, in form of a fine rain, leaving the suspended impurities behind.



Elges' pinch-cock.

Pool's dropping flask.



Pfaundler's mercury filter.

Notes on Kola Nut.

THOMAS CHRISTY has just published No. 8 of his *New Commercial Plants and Drugs*, from which we take some interesting notes on kola nuts, the seed of *Sterculia acuminata* R. Brown, called in various native dialects: *Kola* (*cola*), *gourou*, *ombéné*, *nangone*, *kokkorokou*, *bissy-bissy*, *coorooah*.

Mr. Christy, having become convinced of the value of the nuts, in 1878, recommended them to British Colonial planters, and he sent specimens to Kew and several professional gentlemen. The trees raised from the nuts which he sent out are now bearing fruit. Mr. Armstrong, when working with kola, found that it had the singular property of clarifying beer and spirit, and of greatly improving the beer. This fact is corroborated by Hecke and Schlagdenhauffen in their interesting work on kola, where they say the seeds are reputed to clarify and render healthy the most foul waters, and to make tainted meat edible.

The action of the kola nut in clarifying foul water is doubtless owing to the mucilage which the nut contains, which acts in the same way as the white of egg, or isinglass. At the Linnæan Society, one of the members gave an interesting account of the properties of the kola from actual experience. He stated that the foreman of his estate was in the habit of getting the worse for drink every Saturday, and shortly before his services were required, every Monday morning, his wife used to reduce kola nut into a paste, which the man was made to swallow, and in 30 minutes he was quite clear in his head again; further, it was maintained, that after the use of the Kola cure, a drunkard cannot return to stimulants for some days, without feeling nausea. At some of the garrison towns, a native sits at the roadside and sells the nuts as the men pass, by the time they reach the barracks, they are quite clear-headed, and the stupefaction caused by drinking spirits is gone. On the West Coast of Africa, Mahommetans and Arabs beat the natives at drinking, by chewing at the same time a Kola nut, which prevents the bad effects of the liquor.

Now that there is a regular service of steamers to the West Coast of Africa, the demand for the nuts has greatly increased, and the price has gone up in consequence.

I now have to record one of the most important discoveries that has yet been made with the nut of *Sterculia acuminata*, *i. e.*, that these nuts can be prepared by a special process and made into a paste that could not be distinguished from fine cocoa paste (made from *Theobroma Cacao*). This paste has been tested in this country in many ways, and the results are worth mentioning.

If Kola paste is mixed with cocoa, it gives a chocolate of a superior and finer quality than Caracas; if it is mixed with three parts of a low class cocoa, it improves the latter, both in strength and flavor, to an astonishing degree. Chocolate made with kola paste is ten times more nutritious than chocolate made with cocoa, and one of my correspondents writes me that his family and many of his friends have taken the kola-chocolate and found it very strengthening and the flavor pleasant, and that they have taken it for more than a year. Kola-chocolate is so nutritious that a workman can, on a single cup taken at breakfast time, go on with his work through the day without feeling fatigued; very little appetite is felt for the mid-day meal, showing that the well-known sustaining properties* of the nut are retained in the paste. Kola-paste has been examined by some of the most careful chocolate manufacturers both in this country and on the Continent, who are so pleased with it that they are willing to contract for supplies as soon as a favorable price can be quoted to them. Some delay in fixing a price is at present occasioned by the uncertain supply of raw or dried kola nuts and the largely increasing demand for this valuable fruit.

The British Government have had a supply of the paste in a pure state and have undertaken to test and experiment with it.

The investigations of Heckel and Schlagdenhauffen have shown that the yield of caffeïne from the kola nut is greater than in most commercial teas and coffees; that the proportion of theobromine is greater than that contained in cocoa. In comparing the kola with coffee, tea, and cocoa, with regard to their nitrogenous principles, chemically defined and crystallizable, it will be found that the kola takes the first place. The physiological effects of kola nut and pure caffeïne are identical. Kola nut is an undoubted stimulant in wasting diseases, and by its bitterness and astringency, acts as a powerful tonic in cases of deep-seated lesions of the digestive organs.

* See New Commercial Plants and Drugs, No. 3, p. 22.

Its place in therapeutics is far above that of mate (Paraguay tea), cuca, and paullinia (guarana). In order that the properties of the nut might be tested therapeutically, I had fluid extracts made both from the fresh and dry nuts, and distributed. These have given very good results in cases of impaired digestion and diarrhœa.

These extracts, which represent in a fluid state an equal weight of the nut, gave better results in dipsomania than the nut itself in a fresh state, owing, no doubt, to the concentrated form of the remedy, and its more rapid absorption by the stomach. In cases of diarrhœa, to which Europeans are so subject in the tropics, fluid extract of kola has effected many cures, several cases being old and severe. Dr. Heckel, in his paper, mentions several cases of what is known as Cochin China diarrhœa cured by this nut, given both as a fluid extract and as a wine, thus supporting the evidence of those who have given the nut a trial in this country, and reported upon it in the various medical journals.

I strongly advise planters in our colonies who have low, damp lands, to cultivate this very important tree, for they will find that the demand will increase year by year for this product. It is much more easily cultivated than ordinary cocoa, and yields a large crop twice a year; it does well in low steamy lands, and gives large crops of fruit in some of our West India islands. The kola tree will flourish well at elevations lower than 1,000 feet, and even at the sea level produces crops in the fourth year from planting the seed, and full crops from the tenth year estimated at 120 to 150 lbs., the gathering of the crops being rendered easy by the natural drooping of the branches. With regard to the preservation of the nuts, they have come over to me in either baskets or barrels, lined with the leathery leaves of the "bal" tree. Some were sent to me in dry loam, and they were appeared as fresh as the day they were gathered. I have by me now a barrel which reached me some eighteen months ago, and of which more than fifty per cent are still perfectly fresh-looking, having retained their beautiful red color. I attribute this result to not having unpacked or in any way disturbed them since their arrival.

The best way to ship them for commercial use is, after freeing them from the husks, to carefully and slowly dry them in the shade, where a current of air will pass over them; there is, then, very little shrinkage, and fine dry nuts are obtained not in any way similar to the small shrivelled chips which I have sometimes received from the west coast of Africa, which unmistakably showed that the drying process resorted to in such cases was either by the heat of the sun or that of an oven.

Quantitative Determination of Cinchona Alkaloids.

Y. SHIMOYAMA has made a critical comparison of various analytical methods for estimating quinine in a mixture of cinchona alkaloids, and has come to the conclusion that its precipitation as quinine oxalate is the most reliable so far known. He gives the following directions:

At least 0.5 Gm. of the alkaloids are dissolved in a beaker in about 30 or 40 C.c. of water, with the addition of the least possible quantity of very dilute acetic acid, with gentle heat, the solution filtered from any undissolved substances into a tared beaker, the filter washed, and the united liquid neutralized with very dilute soda solution. If necessary this should be filtered. The filtrate is mixed with a sufficient quantity of solution of sodium oxalate saturated at 18° C., the proper amount being 1 C.c. for each 0.1 Gm. of the mixture of alkaloid taken for analysis. The liquid is now concentrated on a water bath to 8 or 10 Gm., until a copious precipitate makes its appearance on cooling. Should a slimy mass separate during the concentration, it must be filtered off and well washed with boiling water. To the contents of the beaker there are now added 10 to 15 C.c. of water, and the whole stirred until the slimy mass which separates together with the precipitated oxalate is completely redissolved, and the whole is then set aside for three hours at a temperature of 18° C., during which time it should be repeatedly stirred. The contents of the beaker are now weighed, the precipitate is collected on a double filter and washed a few times (with the aid of a filter-pump) with a solution of oxalate of quinine saturated at 18° C.

In order to dissolve any co-precipitated oxalate of cinchonidine, the precipitate is now washed with the above-mentioned saturated solution of oxalate of quinine, into a flask, the latter briskly shaken during fifteen or twenty minutes, and then set aside for two hours at 18° C., the shaking being occasionally repeated. Finally, the precipitate is collected upon a double filter (dried at 110° C. and tared), well washed with the saturated solution of oxalate of quinine, with the aid of the filter-pump, then dried and weighed.

From the weight thus found it is now necessary to deduct the amount of quinine oxalate which had been soaked up during the washing by the filter and by the precipitate. According to Shimoyama's investigations, this amounts to 0.00069 Gm. for every gramme of solution of oxalate of quinine. To make the correction, the obtained quantity of oxalate of quinine is first deducted from the total weight of the contents of the beaker. The difference represents the quantity of mother-liquid. This is then multiplied with 0.00064, and the product added to the quantity of quinine oxalate found.

The amount of pure quinine is found by multiplying the figure obtained for oxalate of quinine with 0.878 (since 1 Gm. of oxalate of quinine contains 0.878 Gm. of pure quinine).—*Arch. d. Pharm.* and *Ph. Zeit.*

Behavior of Quinine towards Oxalic Acid in Presence of Cinchonidine.

Y. SHIMOYAMA'S method of estimating quinine by means of oxalic acid, described above is criticised by Dr. J. E. de Vrij, who says:

"After I had found that all basic sulphates of quinine of the market contained cinchonidine, which varies in quantity from 4 to 13 per cent, I made an attempt to determine the quinine as oxalate. For this purpose 10 Gm. of sulphate of quinine (containing by optical test 11 per cent of sulphate of cinchonidine) were dissolved in 400 Gm. of boiling water, and a solution of 4 Gm. of ammonium oxalate added. I expected that almost all of the quinine would be obtained as crystalline oxalate, and that the cinchonidine would nearly all remain in the mother-liquor. Experience, however, showed that I was deceived, since the mother liquid of the oxalate of quinine, when treated with sodium tartrate, yielded 7.33% of quinine tartrate (determined optically). It follows therefore that the bibasic oxalic acid is not capable of effecting a separation of quinine from cinchonidine.—*Arch. d. Pharm.*, 223, 349.

The British Pharmacopœia, according to the *Pharmaceutical Journal*, is completed, all but the index. It will be about one hundred pages larger than the preceding edition, and will include upwards of one hundred new remedies and preparations. Only a score of articles have been omitted.

Repairing Platinum Vessels.

WHEN platinum vessels, after long-continued use, begin to show signs of wear, and become perforated with minute pin-holes, they are usually accounted of no further utility, and are disposed of as scrap; not that it is impossible to repair them—for with fine gold wire and an oxy-hydrogen jet this is easily feasible—but that the proper appliances and skill are not in possession of all. Irrespective of the manipulation of the hydrogen jet, it is rather difficult without long practice to hold the end of the fine wire precisely over the aperture and to keep it in position. It occurred to me that, if the gold in a finely-divided condition could be placed in very intimate contact with the platinum judging from the fusibility of gold-platinum alloys, union could be effected at a lower temperature over the ordinary gas blow-pipe. I tried the experiment, and found the supposition correct. The substance I used was auric chloride, $AuCl_3$, which, as is well-known, splits up on heating, first into aurous chloride, and at a higher temperature gives off all its chlorine, and leaves metallic gold. Operating on a perforated platinum basin, in the first instance I placed a few milligrammes of the auric chloride from a 15-grain tube precisely over the perforation, and then gently heated to about 200° C. till the salt melted and ran through the holes. A little further heating caused the reduced gold to solidify on each side of the basin. The blowpipe was now brought to bear on the bottom of the dish, right over the particular spots it was wished to solder, and in a few moments at a yellow-red heat (in daylight) the gold was seen to "run." On the vessel being immediately withdrawn, a very neat soldering was evident. The operation was repeated several times till in a few minutes the dish had been rendered quite tight and serviceable.

Using the gold salt in this way, the principal difficulty experienced in holding gold wire unflinchingly in the exact position vanishes, while only a comparatively low temperature and small amount of gold is necessary. Care must be taken to withdraw the platinum from the flame just at the moment the gold is seen to run, for if the heat be continued longer, the gold alloys with a larger surface of platinum, spreads, and leaves the aperture empty. As in the case of all gold-soldered vessels, the article cannot afterwards be safely exposed to a temperature higher than that at which the soldering was effected, and on this account it is advisable to use as small an amount of auric chloride as possible. When the perforations are of comparatively large size, the repairing is not so easy, owing to the auric chloride, on fusing, refusing to fill them. I find, however, that if some spongy platinum be mixed with a few milligrammes of the gold salt, pressed into the perforation, and heat applied as directed, a very good soldering can be effected. It is well to hammer the surface of the platinum while hot, so as to secure perfect union and welding of the two surfaces. This may be done in a few minutes in such a manner as to render the repair indistinguishable. Strips of platinum may be joined together in much the same way as already described. A few crystals of auric chloride placed on each clean surface, and gently heated till nearly black, then bound together, and further heated for a few moments in the blowpipe flame. Rings and tubes can also be formed on a mandrel, and soldered in the same fashion, and the chemist thus enabled to build up small pieces of apparatus from sheet platinum in the laboratory.—J. W. PRATT in *Chem. and Drugg.*

THERMO-REGULATOR.

THE apparatus here described has been designed by A. Fock for the purpose of producing either constant temperatures or such constant variations of the latter as may be determined beforehand.

A is a cylindrical vessel, made of tinned iron, into which a smaller one, *B*, is firmly soldered. At *a* and *b* the interior of the double-walled space communicates with the pipe *c*, which passes through a condenser, *C*, placed above, best in form of a worm. Below the place where the pipe is attached to *b*, a small stop-cock, *r*, is situated, by means of which communication may be established with the receiver, *k*. At *e*, a thermometer is inserted, and the same opening serves also for introducing the proper liquid into the vessel, *A*. Now, if some substance of high boiling point, such as paraffin, olive oil, or fusible metal, is placed into the vessel *B*, and the liquid in *A* raised to boiling while the stop-cock *r* is closed, the contents of *B* would acquire the constant and even temperature of the vapor of the boiling liquid. If, on the other hand, a liquid of variable boiling point, such as petroleum, is put into *A*, it will be possible to obtain any constant temperature which a mercury thermometer can indicate. For instance, if a temperature of 280° F. is to be attained, and then maintained, enough of the lighter portions of the petroleum are distilled off, until the above temperature has been reached. The stop-cock *r* is now closed, and the condensed vapor of the remaining liquid will continue to flow back into the vessel *A*. At the same time the contents at *B* will gradually acquire this temperature and retain it. If petroleum is used for this purpose, it is advisable to keep on hand a series of different fractions which should not vary by more than 40° or 50° C., but which may be prepared beforehand by this very apparatus. The differences of temperature of different portions of the bath (*B*) amount to not over 20° C.

This apparatus will be found exceedingly useful for many purposes, among them for the determination of melting points, since it permits a very gradual raising of the temperature, but allows the condensed liquid to run off only very slowly through the stop-cock *r*. The disadvantage caused by the fact that the apparatus is non-transparent can be overcome in various ways. The melting point may be indicated either by causing an electric circuit to close at the proper moment, or a small mirror may be attached over the vessel *B* in such a manner that it is inclined in an angle of about 45 degrees.

If the vessel *B* is left empty, and merely closed with a large flat cork, or other contrivance, a very serviceable hot-air bath is obtained.

The size and shape of the apparatus may be adapted to its special use. If no higher temperatures than 180° C. are to be attained, it may be constructed of tinned iron, well flanged and soldered with soft solder. For higher temperatures, however, hard solder must be used. [We think it will be found cheapest and safest in the end to use hard solder exclusively.] —*Ber. Deutsch. Chem. Ges.*, 1885, 1,124.

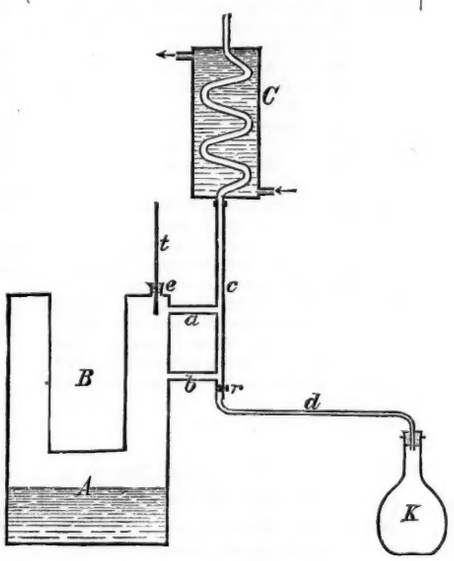
Casein Mucilage.

A VERY serviceable adhesive mucilage may be prepared in the following manner:

Heat milk with a little tartaric acid, whereby casein is separated. Treat the latter while still moist with a solution of 6 parts of borax in 100 of water, and warm gently while stirring, which will cause the casein to be dissolved. Of the borax solution enough should be used to leave only a little undissolved casein behind.—R. KAYSER, in *Mitth. d. Bayr. Gewerbemus.*

The so-called Fat in Cinchona.

ALTHOUGH several authors have referred to the mixture of substances extracted from cinchona barks as containing "fat" or "wax," its history has not hitherto been satisfactorily made out. Professor Flückiger, in his "Chinarinden," mentions a "wax," sometimes colored green by chlorophyll, which was obtained by Herr Kerner in colorless lamellæ, and named "cinchoceratin." It was afterwards prepared in a purer form by Herr Helms, who thought it was neither a fat nor a wax, but a body resembling betulin or cerin. The investigation has now been taken up by Dr. Hesse, who reports (*Annalen d. Chemie*, ccxxviii., 296) that he finds cinchona barks to contain, in varying quantities, three isomeric bodies of the formula $C_{30}H_{24}O$, one of which, "cupreol," is met with especially in cuprea bark; another, "cinchol," occurs only in true cinchona barks and in all of them;



Fock's thermo-regulator.

whilst the third, "quebrachol," which would appear to be identical with a body discovered by the author in quebracho bark (*Pharm. Journ.* [3], xii., 785), has been observed only in Ledger barks. All three bodies belong to the class of cholesterines, to which also belongs the phytosterin prepared by the author from the calabar bean. They resemble one another very closely, but can be distinguished by their acetyl compound. Dr. Hesse considers that the bodies referred to as having been described by Messrs. Kerner and Helms consisted chiefly of cinchol.—*Pharm. Journ.*

"Dover's Solution" and "Red Drops."

A PREPARATION, known as *Liquor Doveri, Dover's Solution* (Liquor Ipecacuanhæ et Morphinæ), which originated with Dr. J. D. Coleman, of Juliustown, and afterwards of Trenton, N. J., and is quite popular in several localities, is prepared as follows:

Acetate of Morphine...	60 grains.
Diluted Acetic Acid...	1 fl. oz.
Dilute Alcohol.....	7 fl. oz.
Wine of Ipecac.....	2 fl. oz.

Dissolve the acetate of morphine in the acid, add the diluted alcohol and wine of ipecac, and mix the whole thoroughly. Set aside for 24 hours, then filter through paper.

Mr. Edwin H. Hess, from whose thesis on the subject (*Am. Journ. Pharm.*, 1885, p. 235) we take this formula, adds: "In Trenton, where I became acquainted with it, it may be gotten from any pharmacist, and is always kept in stock, is prescribed by almost all the physicians, and has a local reputation among the people as a remedy for all ills common to mankind, probably as great as paregoric."

The above enters into the composition of a preparation known as

Red Drops.

Comp. Tincture of Catechu..	5 fl. oz.
Spirit of Camphor.....	1 fl. oz.
Dover's Solution.....	2 fl. oz.

This is quite an efficient remedy for diarrhœa, dysentery, cholera morbus, and all summer complaints in general. Locally it has acquired no mean reputation among the physicians and others, and is thought by some to be equally as good, if not superior to the best-known cholera mixtures.

Effect of Light upon Iodoform Preparations.

EDUARD FABINI has investigated the peculiar change which certain preparations of iodoform, such as an ointment made with vaseline, or a solution in collodion, undergo some time after being prepared.

It has been supposed that some constituent or property of the vehicle caused a decomposition of the iodoform, but this appears to be not the true cause, though it may occasionally promote the change.

If hyposulphite of sodium, for instance, is added to iodoform ointment, it does not remedy the evil, simply because no free iodine, recognizable by chloroform, is separated. The same is the case with iodoform collodium and both are thereby different from an ointment containing iodide of potassium, in which the change is due to the separation of free iodine.

The real cause of the alteration in the preparations above named is the effect of light (daylight, sunlight). This may be shown by exposing a glass-vessel containing iodoform ointment (made with petrolatum) to direct sunlight, in such a manner that a portion of the surface turned toward the light is protected from the latter by a strip of paper pasted over it. If the latter be removed, say after ten minutes, the dark tint which the unprotected surface has acquired by the exposure will strike the observer as quite remarkable.

Pure iodoform, when exposed to sunlight by itself, does not show any change or decomposition. This appears to occur only when it is exposed while in intimate contact with organic substances or solvents.

It follows, therefore, that such iodoform preparations should be prepared by artificial light, and should be kept protected from the light. The iodoform collodion, especially, should be only dispensed in dark-colored glass vessels.—*Pharm. Post.*

Vaseline in Pastry.

IT was stated at a recent meeting of the Hygienic Council of the Department of the Seine at Paris, that it had been found that vaseline was being used in pastry in place of butter or fat. Pastry thus made will keep much longer than if butter be used, but vaseline has no nutritive properties, and its effect on the digestive apparatus has not been ascertained. The Council, therefore, advises that its use for pastry making shall not be permitted in France.

New Method of Milk Analysis.

FOR the purpose of insuring a finer comminution of the dry residue, so as to facilitate the complete extraction of fat, Matthew A. Adams recommends the following procedure:

Filtering paper is cut into strips, 22 inches long by 2½ inches wide, and rolled spirally around a glass-rod, so that the outermost turn is a less than 1 inch in diameter. These rolls are then dried at 100°, their weight, when dry, noted upon them with lead-pencil, and then put aside for future use.

A portion of about 5 C.c. of the milk to be examined is put into a small beaker glass, 2 inches high and 1¼ wide, the whole weighed, and one of the above-described paper spirals dipped into it. In a few minutes the paper will have soaked up the milk, and, with a little dexterity, the roll may be lifted out and laid with its dry edge upon a plate of glass. The beaker is immediately weighed again, the loss of weight representing the amount of milk soaked up by the paper. In drying the paper spiral, care must be taken that none of the milk reaches the plate of glass. After one hour's drying it is ready for treatment with ether or benzin, which need never exceed three hours, after which time all fat will have been extracted, and the residuary paper-roll, when dried again, indicates by its loss in weight the quantity of the extracted fat.

The results quoted by the author exceed in accuracy those obtained by any other method.—*The Analyst*, 1885, 46.

[This method may also be used in many other cases with advantage. The liquid soaked up by the paper spiral covers so large a surface that evaporation of any volatile solvent must be quite rapid.]

Gum Arabic.

THIS is influenced by the Soudan war. The statistics of the London markets do not distinguish Egyptian gum from other kinds. Here are the figures of the market at Trieste, dealing with Egyptian gum alone:—

	1880 Sorts.	1881 Sorts.	1882 Sorts.	1883 Sorts.	1884 Sorts.
Stocks, Jan. 1st..	1,235	5,906	3,521	3,914	722
Imports.....	20,637	16,843	12,272	10,383	5,983
Total.....	21,872	22,749	15,793	14,297	6,705
Deliveries.....	15,966	19,228	11,879	13,575	5,850
Stocks, Dec. 31st.	5,906	3,521	3,914	722	855

The rise in price foreseen in 1882 as a result of Arabic rising dates from September, 1883, as the arrivals at Cairo decreased, and the stocks shrank there and at the central market. In January, 1884, in consequence of the success of the Mahdi, the price had doubled (in London 110*s*, as against 55*s*. in the summer of 1883), but over eager sales reduced it in February to 80*s*. to 85*s*. Since then there has been a steady rise, and to-day gum cannot be bought under 120*s*. to 125*s*. The further course of the article depends on the collections in the Soudan, which must be completed before the rains come on at the end of February. The chance of this is small, and depends on an urgent need of money among the tribes. In favorable circumstances, then, fresh supplies may arrive from the Soudan in the second half of this year. Till then the stocks must hold out, though the price is very likely to increase, especially for the picked sorts, which have hitherto been too cheap. If the imports fail, there will be complete scarcity, and it is impossible to say what prices will be reached. On this chance a "ring" in gum Senegal has been founded in Bordeaux during the last few weeks. After securing the old stocks and the expected imports, it has dictated a rise from 180 f. to 220 f. Even in January it could be bought at 170 f. to 175 f., and the remaining stocks seem to be by no means inconsiderable. Some say the collection in Senegal has turned out ill this year, but this needs confirmation.—*Chem. and Drugg.*

Precaution in Keeping Bromine, Nitric Acid, etc.

FERD. FISCHER calls renewed attention to the necessity of using care in keeping stock-bottles of bromine, fuming nitric acid, and other similar substances of corrosive or otherwise dangerous properties. Having had an accident with a two-pound bottle of bromine, which broke in the store-room of its own accord, he advises that all vessels containing such substances be placed into stone jars, containing some water, and closed with stone covers.

[This advice is not new, but cannot be too often repeated. Phosphorus especially should be treated in the same manner.—ED. A. D.]

Influence of Light upon Ether.

A SHORT time since, Herr Buchner reported that he had found that commercial "pure" ether, even after further rectification, in contact with cadmium iodide, appeared to give rise to the formation of some oxy-iodide, iodine being liberated at the same time. At first he was disposed to attribute the reaction to some persistent impurity in the ether, but he has now come to the conclusion (*Chem. Zeit.*, May 13th, p. 691), that it is due to dissolved ozone. Schönbein had already observed that ether in contact with atmospheric air is capable of giving rise to the formation of ozone, and the author has ascertained that this change takes place with extreme rapidity, under the influence of diffused sunlight; but that freshly rectified ether will remain free from ozone for several weeks, if kept in the dark. The practical lesson drawn is that in order to preserve ether in a proper condition it should be protected from exposure to light.—*Pharm. Journ.*

Determination of Organic Matter in Drinking Water.

IT has often been noticed that discordant results were obtained by different experimenters when determining the amount of organic matter in water by heating with permanganate of potassium.

O. Kaspar has recently observed that if the heat is raised to *boiling*, and continued more than ten minutes, the results obtained are *much too high*. On the other hand, if the temperature does not exceed 70° C. (158° F.), and the heat is continued for not over 5 minutes, constant results are obtained. He even prefers a temperature of 50° C. (122° F.). He directs to heat the water with the reagent at this temperature, adding a sufficient quantity of the latter, to retain a red tint in the liquid at the end of the 5 minutes, then to add standard oxalic acid and to determine the excess of the latter by titrating with standard permanganate.

Purification of Impure Fatty Oils.

ACCORDING to G. Fischer, fatty oils which have been used and have become dirty and impure may be restored to their original bright condition by warming them first to a temperature of 40° C. (104° F.), and then adding, under constant stirring, a previously prepared mixture of equal weights of concentrated sulphuric acid and 95% alcohol. Two pounds of this mixture are sufficient for 100 pounds of oil.

If sulphuric acid alone were used, a portion of the oil would be resinified. Being added partly as sulphethylic acid, the effect is different. It mixes uniformly with the oil, afterwards causes a turbidity which gradually ends in the formation of a blackish sediment. The oils which have now become bright, are then poured off or drawn off from the latter, washed with boiling water to remove every trace of sulphuric acid, and then allowed to clear by standing.—*Neueste Erf. u. Erf.*

Cologne.

EUGEN DIETRICH has recently published the following formulæ in the *Pharm. Centralhalle* (1885, 104):

	Parts
Oil of Bergamot	10
" " Lemon	5
" " Lavender, rect., best	1
" " Rosemary, French, rect.	5
" " Cloves	1
" " Neroli, best	1
" " Ylang	½
Acetic Ether	1
Diluted Acetic Acid	1
Alcohol	825
Distilled Water	150

Mix, heat to 70° or 75° C. (158° to 167° F.), let stand a few days in a cool place, then filter.

The heating brings the product closer to a distillate and renders it much superior to a mere mixture.

An addition of musk or ambergris is out of place, as long as it is desired to produce an imitation of the original eau de Cologne, which does not contain a trace of either.

Genuine Cologne is of two kinds, acid and alkaline. The former is represented by the formula given above, while the latter contains a little ammonia. A formula for this is given here:

	Parts.
Oil of Bergamot	10
" " Lemon	5
" " Rosemary, best	2
" " Neroli, best	1
" " Lavender, best	½
Stronger Water of Ammonia	½
Alcohol	885
Distilled Water	100

Mix, heat to 70° or 75° C., set aside in a cool place for a few days, then filter.

In this mixture, a smaller quantity of the oils of lavender and rosemary has been used, since both oils acquire, in the presence of free alkalies, a disagreeable, sharp odor.

For baths, a cheaper kind of cologne may be prepared as follows:

	Parts.
Oil of Citronella	2
" " Lemon	2
" " Bergamot	5
" " Rosemary	5
" " Sassafras	2
" " Cloves	1
" " Wintergreen	1
Acetic Ether	10
Alcohol	800
Distilled Water	200

Treat like the preceding.

The average quantity required for a full bath is about 50 Gm. (or about 1¾ fl. oz.).

Potassio-Antimonic Oxalate a Substitute for Tartar Emetic in the Arts.

TARTAR emetic is being gradually replaced in dyeing and printing by a new antimony preparation having the composition $SbK_3C_6O_{12} + 6H_2O$, and containing 23.67 per cent Sb_2O_3. The commercial product crystallizes in white needles resembling oxalic acid or Epsom salt, which are readily soluble in water. It is sold at a moderate price as a substitute for tartar emetic in fixing tannin colors.—*Dingl. Pol. J.*

Simple Process for Separating Zinc.

As a convenient means for the separation of zinc from iron, nickel, cobalt, manganese, and aluminium, the author recommends the conversion of these metals into formiates, and the treatment of the solution with sulphuretted hydrogen. As far as his experiments extend, the zinc is always completely precipitated. The precipitate is always free from manganese and aluminium, and also from nickel, cobalt, and iron, if the solution contains a sufficiency of free formic acid (at least 15 to 20 C.c. of acid of spec. grav. 1.2 in 250 to 500 C.c. of liquid), and those metals are not present in too great excess. In other cases, traces of foreign sulphides are sometimes mixed with the zinc hydrosulphide, and give it a reddish-brown tint. Iron is most easily thus carried down, nickel and cobalt less readily. These impurities are in quantity very trifling. For their entire removal, the precipitate after filtering and washing is re-dissolved in nitric acid, supersaturated with ammonia, then with formic acid, and once more precipitated with sulphuretted hydrogen. Such a repetition—certainly not always needed—of the separation would deprive this method of its essential advantages, if we had not a means for making zinc sulphide capable of easy and rapid filtration. To this end sulphuretted hydrogen is passed into the *hot* solution.

The zinc sulphide falls as a granular precipitate which filters and washes quickly and clearly. For washing, sulphuretted hydrogen water is used to which a little ammonium formiate and formic acid have been added.

On passing sulphuretted hydrogen into the hot solution, a little zinc sulphide (about 1 milligramme) is deposited on the sides of the glass, so firmly that it cannot be rubbed off. This film, after rinsing the glass, is dissolved off in a little nitric acid, and the solution is added to that of the main precipitate if the precipitation has to be repeated. If this is not necessary, or, if the second precipitation is already in process, the nitric solution of the film is mixed with ammonia and ammonium sulphide, then with formic acid until the reaction is acid, and the whole is poured upon the filter to the precipitate which is already washed.

When dry, the zinc-sulphide is not horny and brittle like that thrown down from an acetic solution, but pulverulent, and it can be readily removed from the filter without loss.—WM. HAMPE, in *Chem. Zeit.* (*and Chem. News.*)

First Discovery of Bacteria.

THE first who discovered bacteria was the celebrated Antony Van Leeuwenhock, who may be called the father of microscopy. On September 14th, 1683, he reported to Francis Asten, member of the Royal Society, London, that he had observed by means of the microscope, in the white matter taken from between his teeth, live animalcules of graceful motion (*animalcula admodum exigua jucundissimo modo sese moventia*). Leeuwenhock distinguished and described several varieties, which may even now be readily recognized. Nine years afterwards, in September, 1692, he sent new drawings to London which were still more exact.—After *D. Arch. f. Gesch. d. Med.*

Completion of the new Belgian Pharmacopœia.

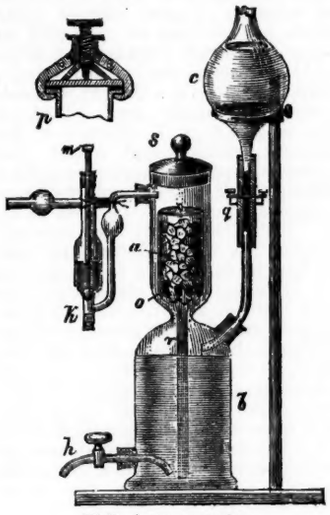
AT a recent meeting of the Belgian General Pharmaceutical Association, Professor Gille stated that the new edition of the Belgian Pharmacopœia, completely printed, had been handed over to the Government by the Commission on the 24th of April,

IMPROVED GAS GENERATORS.

IN spite of the great number of forms of gas generators, the improvements appear to be still far from having reached perfection.

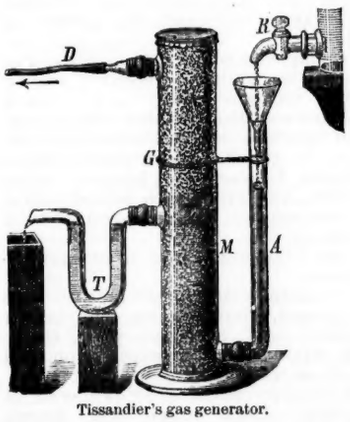
Wollny has lately drawn special attention to *one* defect inherent to all, viz., that they do not permit, without much trouble, refilling the apparatus, while in use. To remedy this, he has constructed the following apparatus.

The substance from which gas is to be generated is placed in the funnel-tube *a*, the thin end of which reaches nearly to the bottom of the vessel *b*, and which has several holes at *o*, for admitting the acid. The latter flows from the reservoir *c* into *b*, and when



Wollny's gas generator.

it rises high enough, passes through the holes *o* into the funnel. As soon as action has begun, a concentrated saline solution is commenced to be formed, and this flows to the bottom of *b*. Being denser than the acid, the latter remains on top, and mixes but



Tissandier's gas generator.

little with the denser salt solution. When the latter accumulates, it may be drawn off through *h*, while new acid is admitted from *c*.

As the gas escapes from the apparatus, it passes through a small washing apparatus, where the passage of the gas may be arrested by pushing down the plunger passing through the upper cork *m*.

When the solid, from which the gas is generated, has been exhausted, this plunger is pushed down so as to prevent the gas from passing into the wash-bottle proper, the lid *s* is next lifted up, the funnel-tube *a* taken out, refilled and replaced. The stopper *s* having been replaced, the cork *k* is gently loosened, until enough gas has passed through to displace all the air admitted by opening the apparatus. The cork is then closed, the plunger raised, and the current of gas will continue to pass as it did before. When the apparatus is not in use, the faucet *g* is closed. The stopper *s* is a glass-stopper around which a rubber-band is stretched. In place of it, a rubber-washer, glass-plate and clamp may be used, as shown in the small annexed cut.

In conjunction with the above, we present another form of generator, designed by Tissandier. The acid flows from a reservoir through the stop-cock *R* into the bottom of a tall cylindrical jar filled with the solid substance (sulphide of iron, marble, etc.). The dense saline solution flows off through *T*, and the generated gas passes out through *D*.—*Génie civil.*

[*Note.*—We would rather admit the acid through the tubulure situated in the centre of the cylinder, and remove the dense salt solution from the bottom, which would produce the same arrangement as that shown in Wollny's apparatus. As it is now, the fresh acid admitted has to mingle with the dense saline solution, while in the other case it would do this but little. —ED. A. D.]

The Determination of Ethyl Nitrite in Spirit of Nitrous Ether and Kindred Preparations.

THE British Pharmacopœia test for the presence of nitrous compounds in the spirit of nitrous ether is a satisfactory one from a qualitative point of view, but it can be applied in a more advantageous manner than is directed in the British Pharmacopœia by mixing the sample with a strong aqueous solution of ferrous sulphate, and then pouring concentrated sulphuric acid down the side of the tube in such a manner as not to mix with the lighter liquid. A deep brown zone will be produced at the junction of the two strata, which, in the case of good samples, becomes intensified by cautious agitation. Many samples of spirit of nitrous ether give a brown color with ferrous solution before the addition of acid, but the coloration is always considerably enhanced by the sulphuric acid, and strong acid is far preferable to dilute.

I have tried the experiment of shaking a sample of spirit of nitrous ether with neutral sodium carbonate, filtering, and testing the filtrate with a solution of ferrous sulphate without adding acid. No reaction was at first produced, but the brown color gradually developed, and after a few minutes was very intense. The iron test has the great advantage of really indicating the presence of nitrous compounds instead of leaving their existence to be inferred from some such fallacious reaction as the decoloration of permanganate. No doubt the permanganate processes of assaying spirit of nitrous ether are capable of giving useful comparative results in the case of samples of good quality, but when applied to inferior samples, or to specimens containing much aldehyde (such as the London Pharmacopœia preparation), the indications are utterly worthless and misleading, and the results should on no account be expressed in terms of nitrous ether.*

The well-known process of Professor J. F. Eykman for assaying spirit of nitrous ether is practically a quantitative application of the iron reaction, but instead of relying on the depth of the brown coloration, the nitric oxide gas evolved is collected and measured. Eykman's process has given excellent results in the hands of Messrs. P. MacEwan and F. S. Dymond, and Mr. D. B. Dott has confirmed the general accuracy of the process, and has found

*A sample of sweet spirit of nitre, which gave only faint indications of nitrous compounds when independently examined by the iron test by four different chemists, was reported by another chemist to contain 1.3 per cent of nitrous ether, as the result of an analysis by Muter's modification of the permanganate process.

the results very constant even when the conditions of the experiment are varied. Their reports have been confirmed in the main by an extensive experience of its capabilities in my own laboratory, where the accuracy of the process has been fully verified when a known quantity of pure sodium nitrite (made from silver nitrite) is employed. With solution of ethyl nitrite several sources of error exist, which tend to cause the method to give results somewhat below the truth. The chief cause of error is probably incomplete reaction, but the solubility of nitric oxide in aqueous liquids also affects the results. The loss from the latter cause is reduced to a minimum if a nitrometer be employed instead of the gas being caused to bubble up through a solution of soda. Probably still closer results might be obtained by saturating the soda solution with common salt.

Although up to the present time, Eykman's process has been rightly regarded that furnishing the nearest approach as to accuracy in the assay of spirit of nitrous ether, and kindred preparations for ethyl nitrite, I believe the following method will practically replace it in the future. It suggested itself to me when attempting to estimate ethyl nitrite by the process of Mr. D. B. Dott (*Pharmaceutical Journal* [3], xv., 200, 492, 592) which consists in treating the sample with an acidulated solution of potassium iodide, and estimating the nitrous compounds from the amount of iodine liberated, as ascertained by titration with decinormal solution of sodium thiosulphate. It is evident that the ethyl nitrite may be estimated either from the amount of iodine set free or from the volume of nitric oxide gas evolved in the reaction, the former being Dott's method, and the latter the one to which I now desire to call attention. The assay might no doubt be made in an apparatus similar to that employed by Eykman, but I have found the following method of manipulation far more simple and satisfactory in every sense. It is the outcome of a large number of experiments made to test the constancy of the results under different conditions of operating. A nitrometer should be filled with strong brine, and 5 C.c. of the sample to be tested should then be placed in the cup of the nitrometer, and allowed to enter through the tap, taking care that no air gets in at the same time. Five C.c. of a strong solution of potassium iodide is next allowed to enter, and this is followed by about 5 C.c. of dilute sulphuric acid. Effervescence immediately ensues, and, if the tube be vigorously agitated at intervals* the reaction is complete in five minutes, when the level of the liquid in the two limbs of the nitrometer is adjusted and the volume of nitric oxide gas read off. If the volume of gas evolved be small, another 5 C.c. of the sample should be let into the nitrometer, and the agitation repeated. The calculation is the same as in Eykman's process, the reaction being:

$(C_2H_5)NO_3 + KI + H_2SO_4 = (C_2H_5)OH + KHSO_4 + I + NO$

Thus, 75 parts by weight of ethyl nitrite evolve 30 of nitric oxide gas.

(To be continued.)

SINCE its establishment in 1882, the Tokio University (in Japan) has graduated 178 students in pharmacy, and has, at present, a class of 89.

BY a new law in Arkansas no saloon can be built within 640 rods of a church. But the natives dodge this law by building the saloon first. Then they erect the church right across the road.

* This should be effected by holding the tapped tube vertically, and agitating the contents by a transverse motion. In this way the reaction is readily confined to the upper part of the liquid in the closed side of the nitrometer.

Detection of Phenol in Creasote.*

IN the *Chemical News* of May 2d, 1884, there appeared the following note among the weekly "Chemical Notices from Foreign Sources," the source in this instance being *Zeitschrift für Analytische Chemie:*

"*A Sensitive Reaction of Phenol* J.) F. Eykman).—A very dilute solution of phenol mixed with a few drops of nitrous ether, and the same volume of undilute sulphuric acid, takes a red color. If the acid is allowed to run down the side of the glass so as to form a layer below the phenol solution, there appears a narrow red band where the liquids meet. This reaction indicates one in two millions."

On trying the test with a five per cent solution of pure nitrous ether, and one per cent and one per mill solutions of phenol, I obtained a triple ring, the intermedial stratum being brown, the lower a bright emerald green, and the upper, pink. This not being satisfactory, I referred to the "foreign source," and found that Eykman's paper had appeared in NEW REMEDIES [1882, p. 340], and that *spirit of nitrous ether* was to be used in the test. With the spirit the emerald green color is not produced; the ring is at first brown with a red shade, but after standing for a short time, the brown color disappears, leaving a fine pink stratum, and the strong acid has also a pink shade. On mixing the two liquids, an opaque solution of a red shade (approaching magenta) is produced. The pure nitrous ether solution is quite clear, and of a darker red color. The red color is due to reaction between phenol-sulphonic acid and the aldehyde contained in the sweet spirits of nitre.†

The reaction is a mere test-tube experiment, is pretty and interesting, particularly when a solution of pure nitrous ether is used; the immediate bright green color, and the gradual development of the red, owing to the slow forming of aldehyde, are very interesting. Apart from this, it struck me that the reaction might be practically useful in the detection of phenol in creasote, and I put the matter on trial.

An aqueous solution of creasote (1 in 500) on the addition of spirit of nitrous ether becomes cloudy and colored (phenol solution remains transparent and colorless), and when the sulphuric acid is added, a dark brown ring is formed between the layers. After cooling, the layers are mixed, and a brown solution with a brown froth is formed.

The following results were also obtained:

Creasote containing 10 per cent of phenol. Dark brown ring, brown above, acid acquired pink tinge. On mixing, dark brown solution, and froth of red shade.

Creasote containing 20 per cent of phenol. Dark brown ring, brown above, acid acquired pink color. On mixing, red-brown solution, and froth of red shade.

Creasote and phenol, equal parts. Red-brown ring above, and pink below. On mixing, pink brown solution and pink froth. (This mixture gives results which nearly approach to those with pure phenol.)

If the solutions of pure creasote and those containing ten and twenty of the adulterant be allowed to stand for half an hour or longer after mixing, again shaken, and allowed to rest for a few minutes, the pure creasote froth is found to be white, while the others are distinctly red tinted.

From these results I consider the application of Eykman's test to the detection of phenol in creasote as practicable, the reagents required are common things, and the application of the test quite easy. Although I have made parallel experiments with solution of pure nitrous ether, the results obtained were not much different from those with spirit of nitrous ether. The strength of the creasote solution should be about 1 in 500—a single drop dissolved in an ounce of water will serve. In applying the test, five drops of spt. æther. nitr. are first placed in a test-tube (5 inches by ¾ inch diameter is the best size to permit shaking), then a drachm of the creasote solution, and lastly, the same volume of strong sulphuric acid carefully poured down the side of the tube. There are first to be noted the color of the ring and any change produced in the acid; if it be pink, phenol is present. Then after the contents of the tube are quite cold, the layers should be mixed and the color of the froth noted, which will corroborate the first observation. Further if the contents of the tube remain undisturbed until the flocculence rises to the surface, the clear liquid in the case of pure creasote is of a pale brown color, but when phenol is present to the extent of ten or twenty per cent, it is a dark red, or reddish-brown.—*Pharm. Journ.*, March 14th.

* By Peter MacEwan. Read at a meeting of the Edinburgh Chemists' Assistants and Apprentices Assoc., Jan. 28th.

† See Paper by Mr. Dunstan *Pharm., Journ.* [3], xiv., 837.

CORRESPONDENCE.

DEAR SIR:—I have read with much interest the two serious mistakes in dispensing which were reported in the AMERICAN DRUGGIST, No. 131, and I beg your pardon for troubling you with a few observations on the first of them. It is evident that the only interpretation to be given to "1.5 milligrammes" was: "One milligramme and a half." But as it is not a usual manner of writing, it happens that sometimes it is not well interpreted. I think that the best way for obviating such dangerous mistakes should be that of employing the letters instead of the figures. We never write in Italy: "℞ Atropini sulfurici 0.0015 grammes," but: "℞ Atropini sulfurici one milligramme and a half." I think that in this manner the adoption of the decimal system would present by far less difficulties than those presented by adopting figures in writing prescriptions. I beg your pardon for the trouble, and present to you my best compliments and kind regards.

Most obediently and faithfully yours,

CHARLES RUATA,
Prof. of Materia Medica at the University.

PERUGIA, May 24th, 1885.

To the Editor American Druggist.

SIR:—Some time ago, a Mr. White, herbalist, of Leeds, sought to register as his trade mark the words Essence of Composition; a short letter in one of the trade journals was sufficient to draw the attention of the chemists and druggists to this matter, with the result that fourteen makers of Composition Essence lodged their oppositions at the Patent Office, Southampton Buildings, Chancery lane, London, England.

Mr. White now seeks to register the words "Cherry Balsam" as his sole property. As this matter is important to the trade generally, and especially to those who manufacture preparations of *Prunus virginiana*, perhaps you would kindly publish this letter.

I am, sir, yours truly,

J. P. DOWLING.

11 YORK ROAD, BATTERSEA,
LONDON, ENGL., May 27th, 1885.

THE safety-pin, in one form or another, dates back about ten centuries before the Christian era

QUERIES & ANSWERS.

Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer. Unless special instructions to the contrary accompany the query, the initials of the correspondent will be quoted at the head of each answer.

When asking for information respecting an unusual or proprietary compound, always accompany the query with all the information you may possess respecting it, and, when it can conveniently be done, send a specimen of the label.

No. 1,523.—**Gold Paint, Gilding and Bronzing** (J. Bros., York, Neb.).

In addition to what we have said in our last number, we can give some further hints regarding this subject, on the authority of the *Industrie-Blätter*. A very fine coat of gilding may be applied to plaster, etc., by rubbing the refuse of gold-beater's work with honey, by means of a muller. The substance to be gilt is first coated with linseed oil, and the metallic paste then applied with a rag.

No. 1,524. — **Removing Vegetable Coloring Matter from Alcohol.**

In addition to the answer we printed in reply to this query in our last number (page 119), one of our subscribers favors us with a note suggesting that the coloring matter may be bleached out by exposing the alcohol to sunlight.

No. 1,525.—**Pancreatized Milk** (M. S.).

The best method of pancreatizing milk for small children is probably the following:

Extract of Pancreas.....	5 grs.
Bicarbonate of Sodium...	15 "
Sugar of Milk.....	200 "

Dissolve the powder in ½ pint of cold water, and add ½ pint of milk. Allow the mixture to stand in warm water at about 100° F. for fifteen minutes; then remove it to a cold place. It should not be so far pancreatized as to have a bitter taste.

The above compound powder is best prepared in quantity, and a suitable measure furnished to customer, just large enough to hold the amount requisite for one lot of milk.

No. 1,526.—**Detection of Opium in Tobacco** (C. A. P.).

We have on several occasions examined certain kinds of smoking tobacco and also cigarettes for opium, but have at no time discovered any. In order to assure ourselves of the correctness of our method of assay, we have also experimented with known mixtures of tobacco and opium, which latter we were always able to detect. The method we used was as follows:

Treat the tobacco with cold water so as to exhaust it, evaporate the liquid at a low temperature, while stirring, to a small bulk, and filter. Then add carbonate of sodium solution to the liquid as long as it produces a precipitate. If it does not do so at once, let the whole stand at rest for twenty-four hours. Then remove the precipitate, dissolve it in very dilute hydrochloric acid, mix this with an equal volume of alcohol, and add to it water of ammonia (likewise diluted with its own volume of alcohol) to distinct, but not excessive alkaline reaction. Cover the vessel, and set it aside for twelve or twenty-four hours. Then examine any crystalline deposit for morphine by the usual reactions of identity. The crystals, or apparently amorphous, semi-crystalline film (if only traces are present), may be purified by a repetition of the process.

No. 1,527.—**Coloring Celluloid** (C. K.).

The inquirer informs us that he is often called upon to color celluloid billiard balls, and that he has used all the aniline colors he could think of, but never obtained a permanent color. He desires to know a method by which he can accomplish the object.

Aniline colors cannot be expected to be permanent under any circumstances. Ivory billiard balls are usually dyed by permanent or fast colors, and we presume that celluloid balls can be treated in the same manner. The following are the processes usually employed:

1. *Black.* The balls are first soaked in an alkaline lye or in weak water of ammonia, then in a dilute solution of nitrate of silver, exposed to the light and dried.

2. *Blue.* Steep the balls in the dyer's green indigo vat. Or dip them into a weak solution of sulphate of indigo, which has been nearly neutralized with carbonate of potassium or potash. Or dip into a solution of soluble Prussian blue. Or into a dilute solution of ferric chloride, allow to dry, and then into a dilute solution of ferrocyanide of potassium.

3. *Green.* Steep them in a solution of two parts of acetate of copper and one part of chloride of ammonium.

4. *Purple.* Dip them in a weak, neutral solution of chloride of gold, and afterwards expose them to the light.

5. *Red.* Infuse cochineal with water of ammonia. Soak the balls for a few minutes in water slightly acidulated with nitric acid. Then dip them in the cochineal infusion.

6. *Yellow.* First soak them for some hours in a solution of nitrate or acetate of lead, and afterwards in a solution of chromate (*not* bichromate) of potassium.

7. *Brown.* Use the same method as for black, but have the silver solution more dilute.

8. *Brown* Steep the balls for several hours in a solution of permanganate of potassium, rendered strongly alkaline with soda. The tint may be regulated by the quantity of permanganate.

No. 1,528.—**Cream of Roses** (J. H).

This is also called *Milk of Roses*, and is used as a toilet article. Piesse gives the following formula:

Sweet Almonds (blanched)....	½ pound
Rose Water....	1 quart
Alcohol (91%).....	¼ pint
Oil of Rose.....	1 drachm
White Wax,	
Spermaceti,	
White Castile Soap, each.....	½ oz.

Shave the soap and place it in a vessel which can be heated by steam or a water-bath; add to it 2 or 3 oz. of rose water. When the soap is perfectly melted, add the wax and spermaceti, and stir occasionally. While this is going on, blanch the almonds, carefully excluding every damaged particle. Then beat them up in a scrupulously clean mortar, and allow the rose-water to trickle into the mass by degrees. When the emulsion of almonds is finished, strain it *without pressure* though clean-washed muslin. The previously prepared saponaceous mixture is now put in the mortar, and the ready-formed emulsion carefully and gradually blended with it. As the last of the emulsion is run into the mortar, the alcohol, in which the oil of rose has been dissolved, is made to follow it and mixed very gradually with the other ingredients. A too sudden addition of the alcohol frequently coagulates the milk and causes it to be curdled. As it is, the temperature of the mixture rises, and every means must be taken to keep it down. Finally strain the product.

The almond residue may be washed with a few ounces of fresh rose-water, to prevent any loss in bulk in the whole quantity. The newly formed milk should be allowed to stand at rest for 24 hours, when the clear portion may be drawn off the sediment, and is ready for bottling.

No. 1,529.—**Whitening Shoe Soles** (Subscriber, Milwaukee).

This correspondents wants to know how shoe soles may be whitened without using oxalic acid, which is usually recommended for this purpose.

We believe it may be done by means of caustic lime or by lime-water. But we would prefer to have the question answered by some of our readers who may have some practical experience in this direction.

No. 1,530.—**Bleaching Sponges** (W. W.).

This correspondent says he has tried the hyposulphite process, but it has failed in his hands. He does not give any details of the process, as carried out by him, but we presume he used the hyposulphite in conjunction with hydrochloric or some other mineral acid, which causes an evolution of sulphurous acid gas, and a separation of free sulphur, the gas acting as a bleaching agent.

Sponges having a red core cannot be thoroughly bleached by this method, except by protracted contact, which would eventually injure the texture of the sponge.

The best method of bleaching sponges was published in NEW REM., 1883, 214, and is as follows:

Soak the sponges, previously deprived of sand and dirt by beating and washing, in a one per-cent solution of permanganate of potassium. Then remove them, wash them thoroughly in water (they have a dirty brown color which water cannot wash off) and press out the water. Next put them into a solution of ½ pound of hyposulphite of sodium in 1 gallon of water, to which 1 ounce of oxalic acid (or of hydrochloric acid) has been added just previously to the moment when the sponges are introduced. Leave them in the solution for 15 minutes, then take them out and wash them thoroughly.

Bromine water may also be used for bleaching sponges.

No. 1,531.—**Triple Extracts** (J. D. H.).

These are alcoholic solutions of the odorous principles of so-called *pomades*, that is, pure fats or oils impregnated with the odor of certain odoriferous flowers, herbs, etc. Sometimes mere alcoholic solutions of certain essential oils are likewise called by that name. The "triple extracts" are prepared by macerating the *pomade*, previously cut into small pieces with a certain quantity of alcohol (about one pint for each pound), and macerating them, cold, for a considerable time (4 to 6 weeks, or longer). In some cases, moderate heat may be used to hasten solution; but this is risky, as it may impair the delicate flavor of the product. If the maceration can be conducted in an apparatus where the fat and alcohol, while in contact, are continuously agitated, the exhaustion of the odorous principle will be much more speedy and complete.

After the first concentrated essence (extrait triple) has been poured off, a second and sometimes a third maceration will still extract some of the perfume. These may either be used for inferior or cheaper preparations, or may be used in place of pure alcohol for extracting fresh pomades.

The name *triple extract* (extrait triple) is, properly speaking, applied to such essences as have been prepared by triple maceration. For instance, two parts of cologne spirits are macerated with one part of a pomade or

perfumed oil, and then decanted. The liquid is again macerated with half of its weight of the perfumed fat, and when the liquid is poured off the process once more repeated. At present, it is quite customary to apply this term to macerates which are prepared in the ratio of one pint to one pound.

No. 1,532.—**Works on Perfumery** (J. D. H.).

We can recommend among the large number published, the following:

G. W. S. Piesse, "The Art of Perfumery." 8vo. London, 1879.

R. S. Cristiani, "Perfumery and Kindred Arts." 8vo. Philadelphia, 1877.

G. W. Askinson, "Die Parfümerie-Fabrikation." 8vo. Wien, 1883.

H. Hirzel, "Die Toiletten Chemie." 8vo. Leipzig, 1874.

A. B. Lunel, "Guide pratique du Parfumeur." 8vo. Paris (n. d.).

No. 1,533. —**Sea-Foam** (C. A. B.).

This correspondent asks for the formula of a "sea-foam" (not Sea-Foam baking powder) which which will produce a quick and heavy foam.

A very effective preparation of this kind is made from gum arabic and soap-bark. The exact composition of the "sea-foam" we are, however, unaware of. Perhaps some of our readers can supply the information.

No. 1,534.—**Compound Tincture of Jalap** (J. E.).

This is not officinal in the British, but in the French Pharmacopœia. The formula is as follows:

	Gm.
Jalap	80
Turpeth Root (from Ipomœa Turpethum)	10
Aleppo Scammony	20
Alcohol, 60%	960

Macerate the comminuted drugs for ten days in a well-closed vessel occasionally stirring. Then filter.

No. 1,535.—**Wizard Oil** (C. A. B.).

On page 60 of our last volume, we quoted a formula from the *Indiana Pharmacist*, which is said to yield a product resembling the above. It is as follows:

Oil of Cloves	2 drachms.
Water of Ammonia	4 "
Ether	4 "
Oil Turpentine	4 "
Chloroform	1 "
Camphor	2 "
Oil of Sassafras	8 "
Alcohol, enough to make	1 pint.

Pine Odor Essence.

("Coniferengeist.")

	Parts.
Oil of Pine (needles, essent.)	80
" " Juniper berries	10
" " Rosemary, best	5
" " Lavender	3
" " Lemon	2
Alcohol	900

Mix, filter, and preserve in the dark.

The pine odor is generated by filling an atomizer with water, adding a little of the essence, and spraying it about.—EUGEN DIETRICH in *Pharm. Centralh.*

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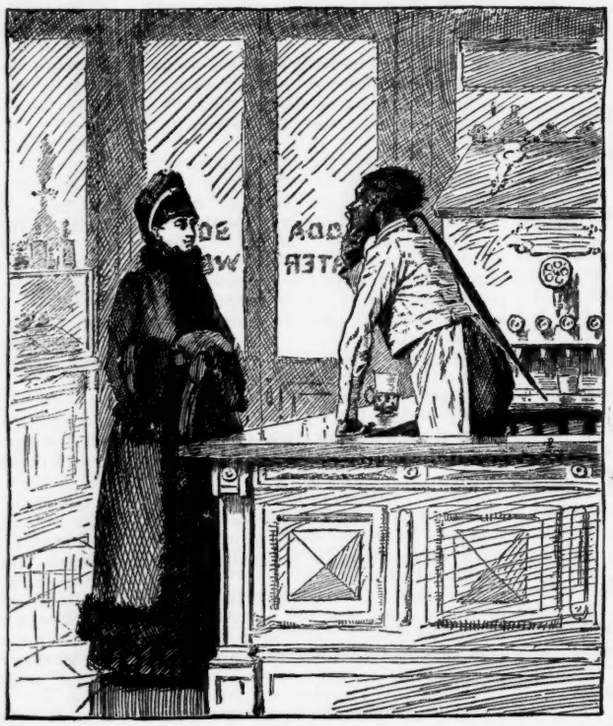
URINARY AND RENAL DERANGEMENTS AND CALCULOUS DISORDERS. Hints on Diagnosis and Treatment. By LIONEL S. BEALE, M.D., etc. Philadelphia: P. Blakiston, Son & Co., 1885, pp. 356, 8vo. $1.75.

THIS is a work of remarkable interest and value for the general practitioner. Its author has already become well-known for his knowledge of the subject, and his ability to make his writings interesting. While glancing over the pages with a view to having something of the general character of the contents, we have been impressed with the familiarity of the writer with facts which too often escape the observation of most practitioners who treat this class of affections, and by the wisdom with which their treatment is advised. It is decidedly a helpful book, and one which should be thoroughly studied.



"No, mum, you didn't have no umbrella here. Yer must hev drapped it somewhar."—*Bazar.*

TEN DAYS IN THE LABORATORY WITH DR. ROBERT KOCH, OF BERLIN. The Methods to be Employed in the Cultivation and Detection of the Comma Bacillus of Asiatic Cholera. By GEO. W. LEWIS, JR., A.B. Buffalo: 1885, pp. 15, 8vo.

AT the present time, when so much attention is given to this subject, this extract from the *Buffalo Medical and Surgical Journal* will be a very acceptable addition to the literature of cholera.

INSOMNIA, AND OTHER DISORDERS OF SLEEP. By HENRY M. LYMAN, A.M., M.D., Professor of Physiology, and of Diseases of the Nervous System, in Rush Medical College, etc. Chicago: W. T. Keener, 1885, pp. 239, 8vo.

THIS is a treatise upon a subject which has received generally less attention than its merits deserve, when we consider how often sleeplessness is a symptom occurring in various maladies, or which alone leads the sufferer to consult a physician. Its contents embraces chapters on the Nature and Cause of Sleep: Insomnia, or Wakefulness; Remedies for Insomnia; Treatment of Insomnia in Particular Diseases; Dreams; Somnambulism, and Hypnotism. It is a good book for summer reading.

OLEATES: An Investigation into their Nature and Action. By JOHN V. SHOEMAKER, A.M., M.D. Philadelphia: F. A. Davis, Att'y, 1885, pp. 121, small 8vo.

THIS is an extended *resumé* of the writings of Dr. Shoemaker on this subject during the past ten years, and will prove of service not only to the dermatologist, but, as well, for the manufacturing pharmacist.

NUEVO FORMULARIO MAGISTRAL. Por A. BOUCHARDAT. Traducido y aumentado con más de 700 formulas nuevas, españolas y etranjeras por D. JULIAN CASAÑA Y LEONARDO.

[NEW MAGISTRAL FORMULARY. By A. BOUCHARDAT. Translated and augmented by more than 700 new Spanish and foreign formulas, by D. JULIAN CASAÑA Y LEONARDO. Nineteenth Ed. Madrid: Cárlos Bailly-Bailliere, 1885, pp. 704, small 8vo.]

NOTES ON THE OPIUM HABIT. By ASA P. MEYLERT. Second Ed. New York: G. P. Putnam's Sons, 1884, pp. 37.

THIS is an interesting pamphlet by a well-known authority on the nature and treatment of this vice.

TREATISE ON EMBALMING. Including a Full and Concise Description of the Methods to be Employed for the Preservation of the Human Body after Death, by Chemical or other known Processes. Together with a full Description of Chemicals Employed in Europe and the United States by the most Eminent Chemists and Professors; also such Anatomical, Physiological and Chemical Facts as are necessary to be understood, in order that Scientific Manipulations may be Carried out. By M. LESSLY. Toledo, Ohio, 1884, pp. 156, 8vo.

THE MINERAL WATER MAKER'S MANUAL for 1885. London, England: J. Gilbert Smith. Office of the *United Kingdom Mineral Water Trade Review and Guardian.* Pp. 108, 8vo. 3 shillings.

BESIDES the current calendar and numerous useful recipes and items of information, this manual contains a photograph of Henry Cochrane, Esq., Alderman, J. P., and principal of the firm of Cantrell and Cochrane, the well-known British manufacturers of mineral waters. The work is a very creditable example of the enterprise of its publisher.

REPORTS.

Twenty-Eighth Annual Report of the COUNCIL OF THE PHARMACEUTICAL SOCIETY OF AUSTRALIA, with which is incorporated the PHARMACEUTICAL SOCIETY OF VICTORIA, 1885, with List of Members and Honorary Members. Melbourne: 1885, pp. 16, 8vo.—PROCEEDINGS of the Fifth Annual Meeting of the IOWA STATE PHARMACEUTICAL ASSOCIATION, held in Marshaltown, May 27th and 28th, 1884; also constitution By-Laws, Roll of Members, etc. Iowa City: 1884, pp. 160, 8vo.—PROCEEDINGS of the Second Annual Meeting of the MICHIGAN STATE PHARMACEUTICAL ASSOCIATION, held at Detroit, September 9th, 10th, and 11th, 1884; also the Constitution, By-Laws, Roll of Members, etc. Muskegon: 1884, pp. 327, 8vo.